# PUBLIC COMMUNICATIONS AND THE FOREIGN EXCHANGE RISK AROUND THE GLOBAL FINANCIAL CRISIS

Jiayu Wang

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Goodman School of Business, Brock University
St Catharines, Ontario

# Abstract

This study explores the effect of four public communication attributes and macroeconomic news surprises on the conditional mean, volatility, and the jump components of the euro-dollar, pound-dollar, and yen-dollar foreign exchange rates from November 1st, 2004 to February 28th, 2015. We extract key attributes from central bank senior official speeches and examine their impact on currencies. We show that price diffusion components respond differently to such attributes across economic states. In addition, volatility exhibits the highest response to the four attributes during the US crisis compared to return and jump components. We find that even though the central bank chairman position has significant impact in general on the price diffusion components, some chairmen have no effect. Yet, the name and personality of the central bank officials matter for the foreign exchange market. We also find that the market fluctuates significantly to speeches related to Economy, Monetary, Interest rate and Real Estate Market during the US crisis. Additionally, central banks play important roles in influencing the market. ECB has a significant effect on returns across all three currencies during the US crisis and plays an important role by affecting the volatility during all periods. Moreover, the central bank chairman can generate greater market reaction than the other positions as it consistently increases the volatility across our sample.



Keywords: Public communications, macroeconomic news, financial crisis, exchange rates, high-frequency data.

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# 1. Introduction

The study of types of information release and their effect on financial market is a hot topic that increasingly attracts the interest of researchers. Andersen et al. (2007a) find that macroeconomic announcements are one of the significant factors that influence financial markets. Moreover, as central banks operate more transparently with the general public, public communications have also become an academic interest since they contain various economic information directly from officials. This information can be an important tool in policymaking and management of expectations. Blinder et al. (2008) document that public communications have evident influence on financial markets in developed countries. Several studies (Ehrmann & Fratzscher, 2007; Connolly & Kohler, 2004) highlight that speeches and interviews related to economic outlook and monetary policy have a significant impact on financial market returns and volatility.

Like other financial fundamentals, exchange rates can react to public communications delivered by officials. Previous studies have been conducted to explore the relationship between public communications and the evolution of currency markets. For instance, Fratzscher (2004) documents that official statements of the ECB can exert both short term and long-term influence on the euro-dollar exchange rate. Furthermore, the recent work of Bajwa (2017) confirms the impact of central bank interventions on the foreign exchange market and reveals that managing exchange rates via central bank intervention is more successful in controlling volatility than physical intervention.

Interestingly, studies suggest that the effect of public communications are amplified during the financial crisis periods, when the exchange rate becomes increasingly volatile (Ehrmann et al, 2014). Hayo et al. (2014) find that Federal Reserve communications have a much greater impact on the US financial market returns during financial crisis periods than normal

economic periods. Ehrmann and Fratzscher (2007) suggest that these communications could be interpreted as crisis management during this volatile period.

Although public communications are influential in foreign exchange markets, the key attributes within these communication events that drive this influence are left unexplored. Therefore, the goal of this thesis is to identify these attributes and investigate their impact on the return, volatility and jump magnitude of the three currency pairs (EUR/USD, GBP/USD and JPY/USD) around the US mortgage crisis (US crisis) and European sovereign debt crisis (EU crisis).

Our study contributes several new ideas. First, we hypothesize four components from public communications that could impact foreign exchange markets – the name of the speakers (the unique personality and fame of specific individuals could make a difference), the content of the speech, the position of the speakers (speakers with superior positions tend to be more influential) and the speaker's institution (renown institutions have greater impact). We then use high-frequency exchange rate data to conduct intraday analysis on the effectiveness of each of these components. We measure the market responsiveness by computing the mean, volatility and jump magnitude of the exchange rate. Similar to Jansen and de Haan (2007), we use macroeconomic news data as control variables. To the best of our knowledge, we are the first to investigate the impact of these four components of public communications on the three main elements of the price diffusion process. In addition, while previous studies investigate the effect of public communications on return and volatility around the US crisis, we extend this analysis by considering jumps, the EU crisis and an extended sample of EU senior officials.

Our results show that all four components of public communications contribute significantly to the foreign exchange market. We find that speeches delivered by influential speakers, such as Bernanke, exert significant impact on the market. The position of the speaker

also contributes to the responsiveness; speeches delivered by speakers who are "President" and "Chairman" cause sharper market response. Communications that involve certain subjects, including economy, monetary, real estate and FOMC, also cause notable impact on the market. In terms of institution, we find that speeches delivered by the central banks have significant impacts on the exchange rate of all three currencies during the US crisis but have less impact during other periods. In addition to the effects of these speech components, we also discover a few general trends. US and European markets tend to be more volatile than Japanese market. Temporally, the market responds more during the crisis periods than non-crisis periods. Within the two crisis periods, the market is more sensitive to communications and news during the US crisis compared to the EU crisis.

The remainder of the paper is organized as follows: Section 2 presents a literature review. Section 3 describes the dataset we use. Section 4 explains the methodology for computing market responsiveness. We discuss our results in Section 5 and conclude in Section 6.

## 2. Literature Review

During the past few decades, there has been an increasing interest in studying the effect of public communications and macroeconomic announcement on various financial fundamentals. Blinder et al. (2008) consider public communication an important and powerful tool for central banks due to its ability to move financial markets. Jansen and de Haan (2005, 2007) document that public communication has an evident and robust impact on exchange rates. In terms of macroeconomic announcements, Andersen et al. (2007a) show that its influence on financial markets can be as strong as public communications. Égert and Kočenda (2014) investigate the impact of central bank speeches and macroeconomic news on the exchange rates of three Central and Eastern European (CEE) currencies against EUR. The authors find that exchange rates are heavily influenced by both types of communications before and during the financial crisis. Although these studies confirm the impact of public communications and macroeconomic releases on financial fundamentals, they have the following limitations: (i) They either study the effect of public communications as a whole or focus only on a specific aspect, such as the institution from which the communication is delivered (Andersen et al., 2003; Andersen et al., 2007a; Jansen & de Haan, 2005, 2007). However, public communication comprises many other components, including the name of the speakers and their titles, and the impact of these components is left unexplored. (ii) Previous works overlook economic states, such as the US mortgage crisis and the European sovereign debt crises that may lead to asymmetrical effecs. We perform a more comprehensive study by extracting four components (name, content, institution, position) from public communications and analyzing the effect of each component. Moreover, we partition our dataset based on the crisis period at which the communication event occurred, conduct a separate analysis for each crisis period, and analyze how different crisis periods (or non-crisis periods) affect the influence of the components. In the

following subsections, we survey related literature in detail. Subsection 2.1 and 2.2 discuss prior works on the effect of public communications on financial markets and currency markets. Subsection 2.3 reviews the literature of macroeconomic news and economic states.

## 2.1 Public communications and financial market

The literature on different components of public communication's influence on financial markets is abundant (Hayo et al., 2014; Ehrmann and Fratzscher, 2007; Born et al., 2014). Hayo et al. (2010) find significant impact of U.S. target rate changes and FOMC communications on European and Pacific equity market returns. European markets are influenced by a greater variety of communications than Pacific markets, and the international equity market reacts more to U.S. monetary statements than the domestic market. Hayo et al. (2014) follow a similar approach on an extensive dataset to document the effects of Federal Reserve communication on US stock and bond market returns from 1998 to 2009 and investigate if a notable change occurred during the financial crisis of August 2007 – December 2009. The authors follow the methodology suggested by Ehrmann and Fratzscher (2007), using a GARCH specification to analyze both formal and informal statements. Their results reveal that central bank communication can drive the financial markets in the intended direction and is more relevant during the financial crisis. In addition, speeches given by the Chairman draw relatively greater public attention than those given by other governors or the President. This is further confirmed by Ehrmann and Fratzscher (2007). Compared with Ehrmann and Fratzscher (2007) study, we consider the EU crisis period since our dataset covers a longer time span. Our result partially agrees with their findings: the Chairman typically generates more market reactions than other positions. However, we also find that this observation depends on the economic state; during the US crisis, the President generates more significant effects.

Ehrmann and Fratzscher (2007) study the communication strategies of different institutions (Federal Reserve, the Bank of England and the European Central Bank) by using newswire information based on FOMC communications. Their major findings suggest that the effectiveness of communication is dependent on the decision-making process. Speeches or interviews regarding economic outlooks have a consistently positive impact on daily bond returns for up to ten years, while only a few news related to monetary policy has positive effects on most maturities. Similarly, Haitsma et al. (2016) examine the European stock markets' response to ECB interventions during 1999-2015. The authors investigate the market prices of futures (government bonds) to identify that unconventional ECB monetary policy surprises are more important than conventional surprises on the EURO STOXX 50 index. In this study, we utilize public communications data delivered from officials of central banks from each region to examine whether different central banks can generate different levels of market reaction.

Born et al. (2014) study the impact of Financial Stability Reports (FSRs) and regular speeches delivered by central banks on stock market returns using a unique dataset that covers more than one thousand FSRs and 37 central banks speeches. Their findings suggest that optimistic FSRs lead to significant and positive abnormal stock returns, whereas pessimistic FSRs have negligible effects. The impact of speeches on the market return is small during normal times and becomes noticeable during the US crisis.

## 2.2 Public communications and currency market

Numerous studies examine the impact of various types of public communications on currency exchange markets. Knütter et al. (2011) identify that statements and press conferences are the most effective tools for influencing currency markets. Fatum and Hutchison (2005) address the rationale behind Japanese foreign exchange market intervention operations in 2003-2004 and evaluate their effectiveness in both limiting yen exchange rate appreciation and

influencing the direction of monetary policy. They find that such intervention is somewhat effective over short periods (several days), but less so over longer periods. Central bank communication greatly influences the exchange rate via the coordination channel (Cavusoglu, 2010). Fratzscher (2006) confirms that official statements of the ECB on the euro-dollar exchange rate have both short-term and long-term effects on the exchange rate. Moreover, these statements are effective even without being accompanied by actual interventions. Jansen and de Haan (2005) analyze the relationship between European central banks communications and euro-dollar exchange rate and conclude that the effects of verbal communications accompanied by macroeconomic news are small and short-lived.

Beine et al. (2007) use newswire service releases to collect and classify the daily statements made by officials of the Bundesbank/ECB, BoJ and the Federal Reserve from 1989-2003. The authors test whether the impact of reported central bank interventions differs from the impact of those with no subsequent statement from a monetary authority and suggest that certain speeches that involve intervention initiatives can influence exchange rate dynamics and volatility. Moreover, issuing official statements which are accompanied by the central bank's interventions, appears to reduce the traditional increase in exchange rate volatility.

Ehrmann et al. (2013) study the impact of public debates on the euro exchange rate during the EU crisis. The study shows that the exchange rate was mainly uninfluenced by public discourses. Our analysis also confirms that market responses were insignificant during the EU crisis.

Jansen and de Haan (2005) study the conditional mean and volatility reaction of the euro-dollar exchange rate to ECB officials' statements of European Economic and Monetary Union (EMU). The authors analyze statements on monetary policy and potential strength of the Euro to discover a relationship between central bank statements and the changes in daily exchange

rate. Using daily data and EGARCH, the authors also find that ECB statements heavily affect volatility, boosting it by up to 25%. Our study implements an intraday analysis, which is more informative and captures market reaction more accurately. Our results suggest that ECB statements significantly decreased returns during the US crisis and play an important role in influencing the volatility during all periods.

Reeves and Sawicki (2007) use both intraday and daily data to capture the impact of communications on foreign exchange markets and find that intraday data provides improved results. In this research, we use higher frequency intraday data, for we believe it can capture the impact of communications on financial markets more accurately. Our contribution includes a more detailed examination on previously studied factors as we extract the names of speakers, the content of the speech, speakers' institutions and the speakers' positions from the dataset and analyze the impact of each component on the exchange market.

Dewachter et al. (2014) use discontinuous jumps and continuous volatility to measure the reaction of foreign exchange market. The intuition behind their methodology is that "jumps" measure sudden market reactions and reveal whether the news adjustment is contemporaneous, while "continuous volatility" describes the persistent market response to communication events. Additionally, we also include "return" in our measurement. Return, volatility and jumps form the three main elements of the price diffusion process, giving us a more comprehensive picture of how market responds to public communications.

## 2.3 Macroeconomic announcements and currency market

Foreign exchange rates also respond to macroeconomic announcements. Cheung and Chinn (2001) use survey analyses to study the impact of news announcements on exchange rates. They find that exchange rates respond very quickly within the first few minutes to news releases related to unemployment, trade deficit, inflation, GDP, interest rate and money supply. This

result coincides with Andersen et al. (2003), who suggest that most macroeconomic news variables have statistically significant coefficients at the 5-minute time interval.

Ben Omrane and Savaşer (2017) state that the releases of macroeconomic fundamentals can trigger significant and persistent increases in foreign exchange return variation, which remains elevated for up to two hours. In addition, recent literature finds that the impact of macroeconomic news on asset returns depends on the state of the economy (Ben Omrane & Savaşer, 2017; Fratzscher, 2009). Fratzscher (2009) empirically analyzes macroeconomic fundamentals and global foreign exchange movements during financial crises. They find that during the crisis period, negative US-specific macroeconomic shocks significantly appreciate the exchange rate of US dollar against virtually all currencies.

Bauwens et al. (2005) use 6-month high frequency data to examine the impact of news on EUR/USD volatility based on both scheduled and unscheduled news announcements and find that the volatility increases in the pre-announcement periods, especially for scheduled news. Ben Omrane and Savaser (2015) expand the data period and implement a STR model to study the macro news reactions on volatility in the euro-dollar, pound-dollar and yen-dollar market. They find that, on average, the volatility reaction to macroeconomic news is larger in expansion periods compared to recession periods in the three currency markets for about 40 percent of the major news indicators.

Égert and Kočenda (2014) employ a two-stage empirical strategy to analyze the impact of various macroeconomic news variables (such as PPI, GDP and unemployment) on the exchange rates of three CEE currencies against the EUR. They apply a monetary model and a GARCH model on the pre-crisis and crisis (2008-2009) periods and find that exchange rates react to macroeconomic news during pre-crisis periods in an intuitive manner that follows exchange rate-related theories. However, during the crisis periods, currency exchange markets

are only sensitive to important GDP-related news. Our analysis extends Égert and Kočenda (2014) by using intraday instead of daily data. In addition, while their study focuses on the exchange rate of three CEE currencies against euro, we focus on the exchange rate of JPY, GBP and EUR against US dollar. Lastly, while their sampling period only covers the US crisis, ours also includes the EU crisis period.

# 3. Data

Our primary dataset spans 10 years from November 1st, 2004 to February 28th, 2015, which includes both the US crisis and the EU crisis. The dataset mainly contains three types of data: (i) Five-minute spot exchange rate of return for three currencies pairs, EUR/USD, GBP/USD and JPY/USD, (ii) Public communications data for US, major Eurozone countries, UK and Japan, and (iii) Macroeconomic news data released in the US, UK, Germany and Japan.

We divide the entire data sample into three sub-sample periods: the US crisis period, the EU crisis period and a non-crisis period. The 2008 financial crisis was the worst economic disaster since the Great Depression of 1929. The United States economic activity experienced sharp downturn and continued to affect globally. The global economy has experienced slow growth since the U.S. financial crisis of 2008-2009, several European countries failed to generate enough economic growth to pay back their bondholders which was guaranteed intend to be. The collapse of the euro and financial contagion caused the European sovereign debt crisis. Some of the contributing effects of the sovereign debt crisis include the financial crisis of 2008 to 2009, however, during 2011 to 2013, the European Debt Crisis has far-reaching consequences which affected Greece, Ireland, Italy, Portugal, Cyprus and Spain. We use the predefined dates published by the National Bureau of Economic Research (NBER) for the US crisis (from January 1st, 2008 to July 1st, 2009) and the Center of Economic and Policy Research (CEPR) for the EU crisis (October 1st, 2011 to March 31st, 2013). We perform separate analysis on each of these periods and compare the reaction of financial markets.

## 3.1 Intraday exchange rate data

We use tick data provided by Hotspot FXi for EUR/USD, GBP/USD and JPY/USD. The high frequency tradable quotes contain the best bid-ask spot exchange rates and traded volume for each currency pair. Each quote is time stamped to milliseconds in Eastern Standard Time

(EST), adjusted to account for daylight saving time. We filter the data by deleting the outliers and anomalies. Due to strong intraday seasonality in the data, we compute 5-minute returns to investigate the effects of news that are often neglected in lower frequency data (Andersen et al., 2007a). There are 288 five-minute intervals in every 24 hours. We set the relevant price at the end of each 5-minute interval to be the price that corresponds to the closest previous tick. The return at time t is computed as the average of the selected bid-ask prices, taking the difference between logarithms of the prices at times $t_{-1}$ and t and multiplied by 100. For outliers and anomalies, we first remove returns from the first interval of each day to eliminate overnight effects – especially for Monday morning. We exclude the data on weekends and ten important US statutory holidays, and data after 21:00:00 on Friday due to lower quoting activity. These filters are consistent with Andersen et al. (2003), Bauwens and Ben Omrane (2005), etc. Our final exchange rate dataset contains 681,115 return observations for each currency pair.

[Insert Table 1 here]

Table 1a represents the descriptive statistics for 5-minute returns in three pairs of currencies. It is obvious that the mean is relatively small, and high kurtosis indicates a heavy distribution tail.

## 3.2 Public communication data

The public communication data (November 1st, 2004 to February 28th, 2015) comes from the Bloomberg ECO (Economic Calendar) Function. This dataset consists of speeches delivered by officials from US, Eurozone countries and Japan, with date, time, currency and event details. Each event time is stamped to the minute. We also separate the United Kingdom from the European Union. We remove events where there is a mismatch between the currency and region. After controlling for missing values, we adjust the time of communications data to EST for each country. Hence, Europe is six hours ahead of EST and Japan 14 hours. We only consider public

speeches within 7:00:00-18:00:00 for US, 1:00:00-12:00:00 for Europe, 2:00:00-13:00:00 for UK and 17:00:00-4:00:00 for Japan.

From each public communication event, we search keywords from the event title to extract four components: the name of the speaker, the content of the speech, the speaker's institution and the speaker's position. The keywords are collected from the categorizations in the Financial Times, Wall Street Journal, Cable News Network and research papers. If a specific keyword appears, we designate one under that category and zero otherwise. The most frequent speakers are aggregated by name to examine their relative impact. Aggregation by content results in eight categories: Economic, Monetary, FOMC meetings, Real estate, Investment, Risk, Regulation and Others. According to Andersen et al. (2003), Fratzscher (2008) and Hayo et al. (2010), the Federal Open Market Committee (FOMC) meeting is treated as one category because FOMC holds eight regular scheduled meetings per year. Aggregation by institution forms four regional categories: Federal Reserve and Treasury for US, Bank of England (BOE) for UK, European Central Bank (ECB) and Bank of Japan (BOJ), which are the central banks from each respective region (Ehrmann et al., 2007). The position categories are typically aggregated by constructing dummies from speakers' position titles. Our position categories are constructed similarly to Hayo et al. (2012) for US institutions, which are President, Board of Governors, Chairman, Chief executive and Secretary. We also add the European positions such as the central bank governor and members of the governing council. We note that the Treasury Secretary has no foreign counterpart.

Constructing 5-minute intervals for public communications data allows us to merge them with the 5-minute returns by date and the intervals for the dummy categories, which are names, contents, institutions and positions. Since public speech data differs for each country, we separate the merged data by country (US, EU, Japan and UK) and currency pair (EUR/USD, JPY/USD

and GBP/USD). Note that we only include the first occurrence of a public speech delivered in a day into the merged data[1]. The final merged data contains 3,138 US, 3,975 European, 366 Japanese and 145 UK public speeches.

## 3.3 Macroeconomic news data

Our macroeconomics news data are collected from the Bloomberg economic calendar. We extract the date, time and event title from each observation and ignore those with missing values. The news surprise component is the difference between actual and forecasted figures dividing by the standard deviation of its difference (Balduzzi, Elton & Green, 2001).

Specifically, $S_{k,t} = \frac{A_{k,t} - F_{k,t}}{\hat{\sigma}_k}$, where $A_{k,t}$ is the actual figure of news k at time t, $F_{k,t}$ denotes the forecasted news figure, $\hat{\sigma}_k$ is the standard deviation of difference for news k. If the actual figures for monetary news and news whose title contains rate decisions are missing, we construct dummies to categorize them. We consider quarterly and monthly announced news as separate items. We also make a distinction between news' advanced reports, preliminary reports and final reports. For US and German news announcements, we only pick the ones that have significant impacts according to Andersen et al. (2003). However, we keep all Japanese and UK news due to their limited quantity.

[Insert Table 2 here]

Table 2 presents the macroeconomic news we selected. The first column shows the macroeconomic news titles we use, followed by country, number of observations in our news sample, start date, end date, release time and the last column presents the news titles we selected according to Andersen et al. (2003).

[1] The merged data sometimes contained the same speech at different times which may have been due to time differences between countries or differences in media coverage.

## 3.4 Descriptive statistics

Tables 3, 4 and 5 present the descriptive statistics for each category of the three currency pairs. We analyze whether there is a market reaction during crisis periods and normal times. As returns are obtained from the merged results following the steps in Subsection 3.2, we present the average and 95$^{th}$ percentile of return for each individual component.

[Insert Table 3, 4 and 5 here]

Panel A in Tables 3(€), 4(£) and 5(¥) illustrates the 5-minute returns aggregated by the content of public communications for the three currency pairs. Most of the public communications titles are related to the economy for all the countries. We find that US speakers give more public speeches than the other countries. Ehrmann et al. (2007) state that FOMC is pursuing an independent communication strategy. Therefore, we classify FOMC meetings as a separate indicator. For each currency pair at the 95$^{th}$ percentile, the returns for FOMC meeting is positive and larger than that of the other categories for all periods. However, the means are relatively small, and some are even negative. This indicates that returns are skewed right and exhibit high volatility.

Panel B of Tables 3(€), 4(£) and 5(¥) demonstrates the aggregation by Institutions for both crisis periods and the entire period for each currency pair. Federal Reserve has an overwhelming position regarding the number of announcements released in the US while ECB dominates the European official communication channels. During the US crisis and EU crisis period, the mean is relatively small but the 95$^{th}$ percentile return is larger, which indicates that returns are skewed right and exhibit high volatility.

Panel C of Tables 3(€), 4(£) and 5(¥) show the aggregation by Position for three currency pairs in different economic states. Note that the Secretary position is the head of the US Treasury, and the Chairman of the Board of Governors of the Federal Reserve System is the head of the

Federal Reserve. President of US includes presidents of twelve reginal reserve banks (e.g. Bullard was the president of Federal Reserve bank of St. Louis and Dudley was the president of Federal Reserve New York), while president of ECB is the head of executive board, governing council and general council of the ECB. Their speeches dominate the quantity of public speeches given in the US and Europe. The Governing Council is the main decision-making body of the ECB and The Executive Board of ECB is responsible for implementing monetary policy for the Eurozone. During both the US crisis and EU crisis period, the 95$^{th}$ percentile returns are positive for each currency. The President category has the highest frequency for US and EU. For the US President, over the entire period, there is a negative mean return for all of three currencies but the 95$^{th}$ percentile return are positive and relatively large, indicating high volatility and skewness.

Panel D of Tables 3(€), 4(£) and 5(¥) show the aggregation by individual speakers for three currency pairs in different economic states. We only report the names in the top five numbers of observations for each country. We also include the speaker's position and institution, which helps us explore whether there is any connection between these factors and the market reaction. Ben Shalom Bernanke, who served two terms as the Chairman of Federal Reserve during 2006-2014, oversaw the Federal Reserve response to the late 2000s financial crisis and delivered the most public communications during each of the periods in our sample. Generally, the mean and 95$^{th}$ percentile returns correlated to his speeches are relatively larger than the other US speakers during the entire sample for each of the currency pair.

[Insert Figure 1-3 here]

Figures 1, 2 and 3 show the average and 95$^{th}$ percentile returns of public communications for each currency during the US crisis and the EU crisis period aggregated by name. We pick the top 15 speakers who have the highest frequency of public communications for US and EU and

report the complete list of names for UK and Japan. The complete list of speaker names is shown in Table 6.

# 4. Methodology

## 4.1 Mean and volatility

We analyze the impact of macroeconomic fundamentals and public communications on mean and volatility by using a time-series approach. The return responses to news surprises is modeled as follows:

$$R_{t,n} = \theta_0 + \theta_u \sum_{u=1}^{U} R_{t,n-u} + \sum_q^Q \sum_l^L \sum_{i=1}^{i} \gamma_G X_{i,l,t,n-q} GC_{t,n} + \sum_q^Q \sum_l^L \sum_{i=1}^{I} \gamma_E X_{i,l,t,n-q} EC_{t,n} +$$
$$\sum_q^Q \sum_l^L \sum_{i=1}^{I} \gamma_M X_{i,l,t,n-q} M_{t,n} + \sum_{j=0}^{J} \sum_{k=1}^{K} \beta_G S_{k,t,n-j}\, GC_{t,n} +$$
$$\sum_{j=0}^{J} \sum_{k=1}^{K} \beta_E S_{k,t,n-j}\, EC_{t,n} + \sum_{j=0}^{J} \sum_{k=1}^{K} \beta_M S_{k,t,n-j}\, M_{t,n} + \tau_1 \mathrm{Unsch}_{t,n} + \epsilon_{t,n} \qquad (1)$$

Where $R_{t,n}$ represents 5-minute returns in day t at time interval n. $\theta_0$ is the intercept. $R_{t,n-u}$ is the lagged return (with lag set to *u*) on day t at time interval n with coefficient $\theta_u$ . $X_{i,l,t,n-q}$ stands for the public communication (speech) dummy variable, *i* represents the speaker's name, *l* represents one of the four countries (US, Europe, UK and Japan), and *q* represents the lag (ranging from 1-4). The dummy variable is set to one if there is a speech and zero otherwise. Therefore, the total number of speeches can be obtained by summing the dummies over all possible combinations of speech id, country and lag. Our intention is to investigate the effects of public communications during different business states, so we split the period into $GC_{t,n}$, $EC_{t,n}$ and $M_{t,n}$, which are the predefined dummies representing the US crisis, the EU crisis and non-crisis periods. $\gamma_G$, $\gamma_E$ and $\gamma_M$ represent their coefficients respectively. Since we aggregate the public communications by four categories (content, institution, position and name), we estimate this equation for each specific component. $S_{k,t,n-j}$ represents the news surprise component *k* on day t at lagged time interval n-j. News surprise component is calculated by the difference between actual and forecasted figures divided by the standard deviation of its difference. Similar to the speech variables, we multiply the news surprises with each of the three economic

states $GC_{t,n}$, $EC_{t,n}$ and $M_{t,n}$, where $\beta_G$, $\beta_E$ and $\beta_M$ are the coefficients respectively. $\text{Unsch}_{t,n}$ is a control variable representing unscheduled news dummies with coefficient $\tau_1$. $\epsilon_{t,n}$ is the residual term. We assume that the distribution of disturbance (error term) is normal with a zero mean $\epsilon_{t,n} \sim N(0, \sigma^2)$. The conditional variance $|\epsilon_{t,n}|$ (also known as the volatility) can be estimated using Equation 2:

$$|\epsilon_{t,n}| = \omega_0 + \sum_q^Q \sum_l^L \sum_{i=1}^i \gamma_G X_{i,l,t,n-q} GC_{t,n} + \sum_q^Q \sum_l^L \sum_{i=1}^I \gamma_E X_{i,l,t,n-q} EC_{t,n} +$$

$$\sum_q^Q \sum_l^L \sum_{i=1}^I \gamma_M X_{i,l,t,n-q} M_{t,n} + \sum_{k=1}^k \sum_{j=1}^J \vartheta_G \left|S_{k,t,n-j}\right| GC_{t,n} + \sum_{k=1}^k \sum_{j=1}^J \vartheta_E \left|S_{k,t,n-j}\right| EC_{t,n} +$$

$$\sum_{k=1}^k \sum_{j=1}^J \vartheta_M \left|S_{k,t,n-j}\right| M_{t,n} + \kappa_1 \frac{\hat{\sigma}_t}{\sqrt{N}} + \sum_{d=1}^D \lambda_d I_{d,t,n} + \sum_{p=1}^P \left(\delta_{c,p} cos\left(\frac{2\pi p}{N} n\right) +\right.$$

$$\left.\delta_{s,p} sin\left(\frac{2\pi p}{N} n\right)\right) \varepsilon_{t,n} + \varphi_1 \sum_{w=1}^4 DW_{t,w} + \delta_1 n_{t,n} + \delta_2 n_{t,n}^2 + \tau_1 \text{Unsch}_{t,n} + \varepsilon_{t,n} \quad (2)$$

According to Andersen et al. (2007a), the volatility $|\epsilon_{t,n}|$ is estimated from the absolute value of residual term from Equation 1. The right-hand side of Equation 2 includes three components: public communications dummy variables, news surprises and seasonality controlling elements. The first component involves public communication variables $X_{i,l,t,n-q}$ multiplied by dummies $GC_{t,n}$, $EC_{t,n}$, $M_{t,n}$ to capture economic states (crisis and non-crisis periods).

The second component represents the news surprises. We take the absolute value of news surprise element k as $|S_{k,t,n-j}|$ and multiply it by the economic state dummy ($GC_{t,n}$, $EC_{t,n}$, $M_{t,n}$). $\vartheta_G$, $\vartheta_E$, $\vartheta_M$ are their coefficients respectively. Andersen et al.(2003) document that news effects on volatility disappear gradually within two hours. We then set the number of news lagged intervals j to 24.

Since the global foreign exchange markets have different trading times during the 24 hours, 5-minute returns exhibit strong intraday seasonality patterns that needs to be controlled. Andersen and Bollerslev (1997) use a two-step procedure with a Flexible Fourier Form (FFF)

method to control for this seasonality. Laakkonen (2007) studies different methods to capture intraday seasonality and concludes that the FFF method is the best tool for seasonality filtering. We apply similar notations to Andersen and Bollerslev (1997). $\frac{\widehat{\sigma}_t}{\sqrt{N}}$ is the daily GARCH volatility component with coefficient $\kappa_1$, where N=288, which is the number of 5-minute intervals within 24 hours; the FFF method implies that intraday volatility can be modeled using a trigonometric function, including $cos\left(\frac{2\pi p}{N}n\right)$ and $sin\left(\frac{2\pi p}{N}n\right)$ with coefficient $\delta_{c,p}$ and $\delta_{c,p}$,. We choose $p$=4 according to the Schwarz and Akaike information criteria. This method also contains the indicator variable $I_{d,t,n}$ which is used to capture market opening/closing and lunch time in Japan. In addition, we add the day of the week effects denoted as $DW_{t,w}$ with coefficient $\varphi_1$. Beside the scheduled news announcements, we also consider unscheduled news impacts related to European and US economies.. According to Bauwens et al. (2005), scheduled news is different from unscheduled news because the type and time of the news announcement are known in advance. However, both can provide the public with information that can be quite impactful to the forex market.

## 4.2 Jumps

A jump is defined as the discontinuous price change. Previous findings suggest that macroeconomic news is strongly associated with jumps (Andersen & Bollerslev, 1998; Andersen et al., 2001a, 2001b). To detect the jump responses to public communications, we use a baseline model introduced in (Andersen et al., 2007b; Lee & Mykland, 2008) as well as the robust jump volatility estimator modified by Boudt et al. (2011) to enhance the accuracy of jump

identification. We remove spurious jumps that occur when the volatility is high and consider the relatively small jumps that take place when volatility is low.[2]

After the identification of jumps, we analyze their response to public communications and macroeconomic news. Specifically, we identify and analyze jumps in foreign exchange markets and their dynamic response around the three economic states, i.e. the US crisis, the EU crisis and non-crisis periods.

Following Andersen et al. (2007b) and Lee and Mykland (2008), the change in the log FX price p(t) can be computed by the jump diffusion process as follows:

$$\mathrm{d}p(t) = \mu(t)\mathrm{d}t + \sigma(t)\mathrm{d}W(t) + \lambda(t)\mathrm{d}q(t) \tag{3}$$

where $\mathrm{d}p(t)$ is modeled by combining a Brownian motion process ($W(t)$) with an independent jump process ($q(t)$). $\mu(t)$ and $\sigma(t)$ represent the drift and spot volatility respectively, and $\lambda(t)$ is the size of the corresponding discontinuous jump.

If we assume that there are *T* days of *M* equally spaced intraday returns, $M \equiv [1/\Delta]$, with $\Delta$ being the length of a unit time period, the test statistic for the presence of jumps in an intraday return $r_{t,i}$ is:

$$J_{t,i} \equiv \frac{|r_{t,i}|}{\sigma_{t,i}} \tag{4}$$

where the *i* th instantaneous return of day *t* is $r_{t,i} \equiv p(t + i\Delta) - p(t + (i-1)\Delta)$, with *i*=1, …, *M*.

We then implement the robust-to-jump estimator proposed by Boudt et al. (2011) to estimate the unobserved volatility $\sigma_{t,i}$. Barndoff-Nielsen and Shephard (2004) document that,

[2] It is worth noting that we use the same method, steps and notation implemented in Lahaye et al. (2011) and Dewachter et al (2014) in detecting jumps.

realized bipower variation (RBV) converges to integrated variance if log prices follow a jump diffusion process described by Equation 3 under weak conditions:

$$\operatorname*{plim}_{\Delta\to\infty} RBV_t(\Delta) = \int_{t-1}^{t} \sigma^2(s)ds \tag{5}$$

where

$$\mathrm{RBV}_t(\Delta) = \frac{\pi}{2}\sum_{i=2}^{M} |r_{t,i}||r_{t,i-1}| \tag{6}$$

In Andersen et al. (2007b) and Lee and Mykland (2008), the instantaneous variance $\sigma_{t,i}^2$ is estimated by averaging the RBV over a local window of *K* observations preceding period $(t, i)$. This approach assumes that the variance is approximately constant over the window. Note that the quality of estimation is highly contingent on the choice of *K.* A tiny window will reduce the accuracy of the estimated variance, while on the other hand, the value computed with an overly-large window size could violate the constant variance assumption mentioned above. In their study, the authors suggest using *K*=78, 110, 156, and 270 observations for returns sampled at the frequencies of 60, 30, 15 and 5 minutes.

Under the null hypothesis of no jumps, the probability distribution of $J_{t,i}$ is the same as that of the absolute value of a standard normal variable. Lee and Mykland (2008) suggest using the maximum values of the distribution of $J_{t,i}$ over the sample size to deduce the jumps. Under the null hypothesis throughout the time interval $[(t, i-1), (t, i)]$ as $\Delta \to 0$, the sample maximum of the absolute value of a standard normal converges to a Gumbel distribution. Consequently, we reject the null hypothesis if the following condition applies:

$$J_{t,i} > G^{-1}(1-\alpha)S_n + C_n \tag{7}$$

where $G^{-1}(1-\alpha)$ is the $(1-\alpha)$ quantile function of the standard Gumbel distribution, $C_n = (2\ln n)^{0.5} - \frac{\ln(\pi)+\ln(\ln n)}{2(2\ln n)^{0.5}}$ and $S_n = \frac{1}{(2\log n)^{0.5}}$, $n$ being the total number of observations $(M \times T)$.

Setting the significant level $\alpha = 0.1$, we reject the null hypothesis of no jump if $J_{t,i} > 2.25\, S_n + C_n$.[3]

Boudt et al. (2011) point out that estimating volatility using RBV rolling windows inappropriately smooths the existing intraday seasonal patterns due to the slowly time-varying nature of the estimator. Such cyclical patterns can mistakenly identify jumps from $J_{t,i}$, introducing false-positives. The authors address this problem by estimating and removing the deterministic cyclical component with a robust-to-jumps volatility estimator. They model the instantaneous volatility $\sigma_{t,i}$, as the product of a slowly varying component $\delta_{t,i}$ which is computed using the original rolling windows approach, and a deterministic seasonal component $f_{t,i}$. They propose a modified jump statistic $\mathrm{FJ}_{t,i}$ that considers the seasonal component in volatility:

$$\mathrm{FJ}_{t,i} \equiv \frac{|r_{t,i}|}{\delta_{t,i} f_{t,i}} \tag{8}$$

Finally, considering the modified jump statistic $\mathrm{FJ}_{t,i}$, significant jumps are calculated using the following expression:

$$\mathrm{Jump}_{t,i} = r_{t,i} \times I(\mathrm{FJ}_{t,i} - G^{-1}(1-\alpha)S_n - C_n) \tag{9}$$

where $I(\cdot)$ is an indicator function for positive argument which takes the value one if a significant jump is detected, i.e. $\mathrm{FJ}_{t,i} > G^{-1}(1-\alpha)S_n + C_n$, otherwise zero.

Detected jumps are then regressed on public communications and macroeconomic news surprises. Our objective is to examine the effect of such exogenous variables on price discontinuity, or more precisely, the jumps:

[3] $J_{t,i} > S_n\beta^* + C_n$ with $\beta^*$ such that $\exp(-e^{-\beta^*}) = 1 - \alpha = 0.9$ and $\beta^* = -\ln(-\ln(0.9)) = 2.25$.

$$|\text{Jump}_{t,i}| = \omega_0 + \sum_q^Q \sum_l^L \sum_{i=1}^i \gamma_G X_{i,l,t,n-q} GC_{t,n} + \sum_q^Q \sum_l^L \sum_{i=1}^I \gamma_E X_{i,l,t,n-q} EC_{t,n} +$$

$$\sum_q^Q \sum_l^L \sum_{i=1}^I \gamma_M X_{i,l,t,n-q} M_{t,n} + \sum_{k=1}^k \sum_{j=1}^J \vartheta_G \left|\text{S}_{k,t,n-j}\right| GC_{t,n} +$$

$$\sum_{k=1}^k \sum_{j=1}^J \vartheta_E \left|\text{S}_{k,t,n-j}\right| EC_{t,n} + \sum_{k=1}^k \sum_{j=1}^J \vartheta_M \left|\text{S}_{k,t,n-j}\right| M_{t,n} + \tau_2 \text{Unsch}_{t,n} +$$

$$\kappa_1 \frac{\widehat{\sigma}_t}{\sqrt{N}} + \sum_{d=1}^D \lambda_d I_{d,t,n} + \sum_{p=1}^P \left( \delta_{c,p} cos\left(\frac{2\pi p}{N} n\right) + \delta_{s,p} sin\left(\frac{2\pi p}{N} n\right)\right) +$$

$$\varepsilon_{t,n}\, \varphi_1 \sum_{w=1}^4 DW_{t,w} + \delta_1 n_{t,n} + \delta_2 n_{t,n}^2 + \varepsilon_{t,n} \qquad (9)$$

where $|\text{Jump}_{t,i}|$ is the absolute value of jumps' magnitude. We consider the absolute value in order to highlight the exogenous effects on the size without the diluting effect that could be triggered by the sign of the jump.

# 5. Results

In this section, we present empirical results from the conditional mean and volatility models (Equations 1 and 2) for each component described above (name, content, institution and position). Next, we analyze the results from different economic states defined by NBER and CEPR to examine the effect of public communications during financial crisis periods. We use the first four lags in our analysis and only report attribute values whose coefficients are statistically significant.

## 5.1 Public communication effects on mean

We first report the empirical results given by the conditional mean model. For each component, we run the mean equation with macroeconomic news surprises and use unscheduled news as control variables. We also report the surprises of significant macroeconomic news and unscheduled news from the US and European countries. To investigate whether public communications respond differently during recession periods and normal times, we cross the US crisis dummies, the EU crisis dummies and Non-crisis dummies to all components; we remove a speaker if there are no speeches delivered during a specific period.

[Insert Tables 6, 7 and 8 here]

Table 6 presents the effect of the name component on the returns of EUR/USD estimated from the mean equation. We only list names that are significant at higher than 90% level. Note that there are no Japanese speakers that make any significant impact. Within these names, most coefficients are positive, indicating that there is an appreciation of the euro-dollar after the speeches are delivered. Fisher, Geithner, Lacker and Lockhat, who served as President of Federal Reserve and delivered most of the public communications among US speakers, have significant impacts on the mean. During the US crisis period, there are more coefficients are significant above 95% level compare to the other two periods, indicating the market has stroner responses

to the speeches. During the EU crisis period, we find that almost all significant results come from contemporary EU speakers. Among US speakers, the market only responds to the communications delivered by Evans, who served as the President of Federal Reserve. During the non-crisis period, the market mainly responds to the speeches delivered by Ryan, Kimmitt and Swagel, all of whom served as Secretary of Treasury. However, there is no significant response from Japanese speakers.

Table 7 presents the results for GBP/USD. During the US crisis, the mean returns of more than 40% of the speakers are positive and significant at higher than 99% level. However, US speakers that delivered influential speeches have negative effects on GBP/USD in general. During the EU crisis, less than 5% of the speakers have similar significance, and over 30% of the significant results are positive. Similarly, there are only a few significant names during the non-crisis period.

Table 8 shows the result of JPY/USD. During the US crisis, the mean of returns of more than 80% of the speakers are significant at higher than the 90% level. However, during the EU crisis, only less than 10% of the speakers have similar significance. During the non-crisis period, no speaker delivers a speech with significance higher than 90%. In general, during the US crisis, US speakers that deliver an influential speech have a negative impact on JPY/USD. It is noteworthy that during the EU crisis, all EU speakers that deliver influential speeches have a positive impact on JPY/USD. Similarly, during the non-crisis period, all UK speakers that deliver influential speeches have a positive impact on JPY/USD. We also find that most speeches that have more than a 99% significance level are delivered by speakers whose title contains "President", "Chairman" and "Executive". This indicates that higher positions may lead to greater influence.

Macroeconomic news achieves high levels of significance during the US crisis for all three-currency markets – around 75% of the macro news are significant at higher than the 90% level. However, less than 20% of macro news have similar significance during the EU crisis. About half of influential macro news exerts positive impact during the US crisis. However, over 70% of the influential macro news negatively affect the market during the EU crisis and non-crisis periods.

[Insert Tables 9, 10 and 11 here]

Tables 9, 10 and 11 present the impact of the "content" component on the returns of three currency pairs during the sample period, estimated from the mean equation. The contents are captured directly from the title of the speech. Our results suggest that, in general, during the US crisis, mean returns respond to the content of both public communications and macroeconomic news with most of the significant coefficients being negative. However, during the EU crisis and the non-crisis period, the response is insignificant.

We find that the mean return of speech content relevant to the FOMC Rate Decision is significant at over 99% level across all periods, indicating that it has a great impact on the EUR/USD exchange rate. The second most influential content is Housing Market, with over 99% significance level during the US crisis and an over 95% significance level during the EU crisis. This finding is consistent with the economic state. During the US crisis, there was a sharp increase in new home sales at the beginning and middle stage. However, under the pressure of bad debt and unaffordable mortgages, the real estate market experienced a negative shock at the end. Finally, Risk and Regulation content also has a 99% significance level during the US crisis. For the returns of GBP/USD, during the US crisis, the market clearly responds to the content of public speeches from US, EU and UK, with more than 75% of the significant returns having a 95% significance level. However, the responses are not noticeable during the other periods. For

Macroeconomic news announcements, the market fluctuates more during the US crisis compared to other periods. Almost all significant US news positively influence market returns during the US crisis. However, UK macro news causes negative market impact.

[Insert Tables 12, 13 and 14 here]

Tables 12, 13 and 14 present the impact of the "institution" component, which are central banks from each region. In general, the market reacts sharply to public communications performed by central banks only during the US crisis. Surprisingly, Federal Reserve, which is usually considered as a potential significant attribute, fails to exert meaningful effects on the EUR/USD exchange rate during the US crisis. However, all other central banks play important roles to influence the market. ECB exerts significant impact during US crisis or EU crisis across all three currencies. The intuition behind this finding is that "ECB has been more transparent than the Fed since it opened its door in 1998" (Blinder et al., 2008, p.911). In addition, there are some negative effects stemming from ECB communications on euro and pound market during the US crisis. This result is consistent with Jensen and De Hann (2005), who confirm that "ECB communications that talk up the EUR/USD has not been successful". For JPY/USD returns, Fed and Treasury negatively influence the returns during the US crisis and non-crisis period, respectively. In contrast, ECB has a significant positive influence on the returns during the EU crisis.

[Insert Table 15, 16 and 17 here]

Tables 15, 16 and 17 show the results from the Position component. For EUR/USD, public communications performed by US speakers whose title contains "President" negatively impact EUR/USD returns while those performed by US board of governs and European chief executives positively influence the returns. However, the effects are insignificant during the other periods. The market reaction is extremely weak during the EU crisis – only speeches

performed by Chairmen increase the returns at low significance. During non-crisis periods, Secretary of Treasury and Board of Governors of European Commission (EU) increase the returns significantly. Regarding GBP/USD, the market positively reacts to US and UK Board of Governors, indicating their importance in increasing the return of GBP/USD. Similar results are observed for EUR/USD. Only US Chairmen increase the returns during the EU crisis and Secretary of Treasury and Board of Governors of EU positively influence the returns during non-crisis periods. JPY/USD market responds more sharply compared to the other two currencies. The market significantly reacts to Secretary of US Treasury consistently across all periods. Again, the speeches given by US speakers whose title contains "President" have significant negative effect on the returns. The US Chairman appreciates the JPY/USD return during the EU crisis and Secretary of Treasury and Board of Governors of EU improve the returns during non-crisis periods.

## 5.2 Public communication effects on volatility

As discussed in Section 4, the volatility is estimated from the absolute value of the residual term from Equation 1. For each currency market, we first analyze the volatility of the entire period in general, and then cross with the two crisis periods and non-crisis periods. We take the absolute value of news surprises for the case of volatility and include the control variables (unscheduled news, day of the week dummies, daily volatility components, interval and interval square). We report the attributes whose coefficients are statistically significant.

[Insert Table 18, 19 and 20 here]

Tables 18, 19 and 20 present the effect of speaker names on the volatility of return. A few findings emerge here. First, during the US crisis, the volatility of return of more than 60% of the speakers are significant at higher than a 90% level. However, during the EU crisis, less than 15% of the speakers have the same level of significance. During the non-crisis period, more

than half of the speakers deliver a speech with the same significance. Second, it is noteworthy that speeches delivered by Bernanke, who served as the chairman of the Federal Reserve from 2006 to 2013, achieve at least a 99% significance level across all periods. Moreover, more than 85% of the speeches delivered by influential speakers increase the volatility of EUR/USD during the US crisis, and all of speeches delivered by influential US speakers increase the volatility of EUR/USD during the EU crisis. In contrast, during the non-crisis periods, most of speeches delivered by influential speakers decrease the volatility of EUR/USD.

Table 19 shows the results for GBP/USD. During the US crisis, the volatility of return of more than 85% of the speakers are significant at higher than 90% level, indicating that the GBP/USD exchange rate is very sensitive to their speeches. However, during the EU crisis, less than 8% of the speakers have the same level of significance. During the non-crisis periods, less than 35% of the speakers have the same significance. More than 91% of the speeches delivered by influential speakers increase the volatility of GBP/USD during the US crisis. However, during the EU crisis and the non-crisis period, around 70% of the speeches delivered by influential speakers have a negative effect on GBP/USD.

Table 20 shows the results for JPY/USD. During the US crisis, the return volatility of more than 75% of the speakers are significant at higher than a 90% level, indicating their importance to the exchange rate. However, during the EU crisis, less than 4% of the speakers have the same level of significance. During the non-crisis period, less than 35% of the speakers have the same significance. More than 95% of the speeches delivered by influential speakers increase the volatility of JPY/USD during the US crisis and the EU crisis. However, during the non-crisis period, only half of the speeches delivered by influential speakers have a positive effect on JPY/USD.

In addition, we analyze the effect of macroeconomic news on volatility. The vast majority (over 95%) of influential macro news increases the volatility of financial markets across all periods. During the US crisis, the volatility of more than 75% of the macro news are significant at the 90% level, and during the non-crisis period, more than 60% of the macro news have the same significance level. However, during the EU crisis, less than 25% of the macro news achieve the same level of significance. GBP/USD exchange rate is extremely sensitive to macro news during the US crisis. JPY/USD exchange rate reacts to influential macro news during both the US crisis and the non-crisis period, and less so during the EU crisis. Note that all influential macro news increases the volatility of JPY/USD across all periods.

[Insert Table 21, 22 and 23 here]

The effect of content on the return's volatility are shown in Tables 21, 22 and 23. The content has significant effects on the volatility during the US crisis. However, the response is unnoticeable during the EU crisis. FOMC rate decisions lead to strong increases in the volatility across different economic states for all three currency markets. Blinder, et al. (2008) document that central banks communications can be effective in moving financial markets by enhancing predictability of monetary policy decisions. We find that speeches containing monetary information lead to significant increases in the volatility, especially during the US crisis. Besides monetary information, the market reacts to speeches related to the Economy, Interest rate and Real Estate Market (mortgage, home sales, housing) during the US crisis. It is notable that during the US crisis, all of the significant content and macroeconomic news increase the volatility of EUR/USD. The results are similar for GBP/USD returns. However, the reaction of JPY/USD returns during the EU crisis is not as significant. We find that inflation and rising interest rates can significantly lower the volatility, and FOMC rate decisions remain important. Macroeconomic news has a high impact on the volatility of foreign exchange markets, as we

observe that the volatility increases immediately after the news was released. US macro news generates greater impact than other news.

[Insert Tables 24, 25 and 26 here]

We show the effects of institution on volatility in Tables 24, 25 and 26. In general, both institutions and macroeconomic news significantly impact the volatility of three currency markets. During the US crisis, the volatility reacts to Federal Reserve, Treasury, European Central Bank and Bank of England statements in a strongly positive manner (significant at more than a 95% level). However, during the EU crisis, Fed and ECB only increases the volatility on the EUR/USD market. GBP/USD market becomes less volatile after the statements delivered by ECB, which is the same for the JPY/USD market. The significant institution attributes (Fed, Bundesbank and BOE) decrease the volatility by a small magnitude. During non-crisis periods, the markets' reaction across the three currencies are relatively insignificant. However, BOE statements consistently make significant impacts on the markets.

[Insert Tables 27, 28 and 29 here]

We also examine whether the position of speakers has influence on the volatility of returns. Results are shown in Tables 27, 28 and 29. Hayo et al. (2014) suggest that speeches given by the Chairman generate relatively more public attention than speeches delivered by other governors. We observe consistent patterns where the Chairman generates more market reaction than the other positions. Our results, however, indicate that this trend depends on the economic state. For the EUR/USD market, the market has the strongest response to the Presidents' speeches during the US crisis; with one standard deviation increase in return (US and EU), volatility increases up to 2.5 percent. Chairman has the second largest impact; with one standard deviation increase in return (US and EU), volatility increases up to 1.7 percent. During the EU crisis, Chairman delivers the most influential responses, which create a 1.4 percent volatility

boost with one standard deviation increase in return. During non-crisis periods, Chairman still exerts consistent and strong influence at the 99% significance level, increasing the volatility up to 90 basis points. We observe similar trends in the GBP/USD and JPY/USD market – Presidents generate the most market reaction during the US crisis, while Chairmen generate more public attention during the EU crisis and non-crisis periods.

## 5.3 Jump analysis

We also study how public communication and macroeconomic news affect the jump. We use the jump diffusion process proposed by Andersen et al. (2007b) and Lee and Mykland (2008) to detect jumps and use the procedure introduced in Boudt et al. (2011) to analyze them. The jump diffusion process models the change in the log FX prices with three components: a drift term, a stochastic volatility process with Brownian motion and a discontinuous jump process. Different from mean and volatility analysis, jump analysis will give us insights about how public communications relate to discontinues price changes.

[Insert Tables 30 here]

Table 30 displays the descriptive statistics of jumps for EUR/USD,GBP/USD and JPY/USD at 5-min frequencies. The first panel shows the absolute value of the return E(|return|) and annualized standard deviation of intraday returns, the average jump return for EUR/USD and GBP/USD is 0.02 with standard deviation around 9.9. However, it is noticeable that JPY/USD is more volatile with a standard deviation of 10.89 and 0.03 return. The number of jump days ranges from 818 in GBP/USD market to 985 in EUR/USD market, accounting for 31.88% to 38.39% of the sample number of days. As we look at the whole sample, the jump proportion of returns is very small, with range from 0.17 for 1169 total jumps of GBP/USD to 0.21 for 1464 jumps of JPY/USD. The absolute mean of the jump size E(|jumpsize|) ranges from 0.19 to 0.24, with a standard deviation SD(|jumpsize|) between 0.12 to 0.18. We also separate

jumps into positive jumps and negative jumps, which presents in the last two panels. For all the three currencies, there are more positive jumps detected compare to negative jumps during the sample period, especially for JPY/USD. However, there is little asymmetry displayed for the size of jumps and their standard deviation.

[Insert Tables 31, 32 and 33 here]

Tables 30, 31 and 32 present the effect of speaker names on the jumps of three currency markets. Using only four lags, we find a very limited number of significant results. In contrast to the mean and volatility, the market generates more jump reactions during non-crisis periods compare to crisis periods. This result is corresponded with our jump detection methodology and previous results, since during crisis periods, volatility is higher which makes it more difficult to detect jumps. For the euro and pound market, during the US crisis, the market reacts to Pianalto (President and chief executive officer of the Federal Reserve Bank of Cleveland), Papademos (Vice President of the European Central Bank from 2002 to 2010) and Trichet (President of the European Central Bank. 2003 to 2011). During the EU crisis, only Bernanke's (the chairman of the Fed from 2006 to 2014) speeches influence jumps. Macroeconomic news, such as FOMC Rate Decision, Change in Nonfarm Payrolls and Initial Jobless Claims, has a stronger impact on jumps during the US crisis. However, during the EU crisis, only FOMC Rate Decision creates significant jumps for the exchange rates we studied.

[Insert Table 34, 35 and 36 here]

Tables 33, 34 and 35 investigate the effects of content on jumps. Although the responses are not very strong, FOMC rate decision still exhibits significant impact during both crisis periods and across different markets. For EUR/USD, speeches associated with FOMC rate decisions, Risk and Economy significantly affect the jump magnitude during the US crisis. However, only FOMC has significant impact during the EU crisis. News such as FOMC Rate

Decision Initial Jobless Claims, Change in Nonfarm Payrolls, GDP Annual QoQ Adv and Trade Balance consistently induce jumps in all three currencies.

[Insert Tables 37, 38 and 39 here]

Tables 36, 37 and 38 present the effect of Institution on jumps. Federal Reserve, European Central Bank and Bank of England influence jumps for EUR/USD and GBP/USD. The coefficients are positive and significant, indicating that the central bank communications from each region (except Japan) increase the jump magnitude. FOMC Rate Decision, BOE Bank Rate, GDP Annual QoQ Advance and Retail Sales Ex Auto induce jumps in at least one business states across the three markets.

[Insert Tables 40, 41 and 42 here]

Tables 39, 40 and 41 present the effect of public communications on jumps. For the euro and pound, President from US and UK, Chairman, Board of governor and Chief executive all impact jump magnitudes during the US crisis. During the EU crisis, only Chairman exerts noticeable influence on the euro and pound market. No significant response is recorded for the yen market. In general, the impact of Macroeconomic news is stronger. Change in nonfarm payrolls, FOMC rate decisions and BOE bank rate all significantly affect jumps during crisis periods.

# 6. Conclusion

In our study, we use high frequency foreign exchange rates for three currency pairs (EUR/USD, GBP/USD, JPY/USD) to examine the effect of public communications and macroeconomic news on the mean, volatility and jumps. We document how the returns and jumps respond to communications and news during different economic states. In general, the three currency pairs, EUR/USD, GBP/USD and JPY/USD react to public communications and macroeconomic news on both the mean and conditional volatility during both crisis periods and non-crisis periods. However, the responsiveness of the currencies to public communications becomes more significant during the US crisis period compared to the EU crisis period. The yen-dollar exchange rate was mainly driven by news from the U.S. In general, we find that both public communications and macroeconomic news are important determinants of the mean and the volatility of foreign exchange rates.

We study how the name of speakers, the content of speeches, the institution and the position of speakers affects the market response. First, the market volatility has strong responses to public communications performed by certain speakers during the US crisis. However, the response is not significant during the EU crisis. Bernanke, who served as the chairman of the Federal Reserve from 2006 to 2013, had at least a 90% significance level across all periods and currencies.

Second, the content of public speeches and macroeconomic news have strong impacts on the volatility of euro-dollar currency market. The mean, however, is less susceptible to the content. FOMC rate decisions tend to increase the volatility across different economic states for all of three currency markets. The market fluctuates significantly to speeches related to the Economy, Monetary, Interest rate and Real Estate Market (mortgage, home sales, housing market) during the US crisis.

Certain institutions can also influence the market. For example, ECB has a significant effect on returns across all three currencies during the US crisis and plays an important role on affecting the volatility during all periods. Position titles can also lead to different market reactions. We find that the majority of speeches that have a 99% significance level were delivered by speakers whose title contains “President”, “Chairman” and “Executive”. This indicates that higher positions may have stronger influence. Another finding is that Chairmen can generate more market reactions than the other positions and it consistently increases the volatility across the markets we study. However, our results indicate that this depends on the economic state, as President generates more significant increases in volatility during the US crisis.

We also analyze the effect of public communication and macroeconomic news on jumps. We follow the same jump identification procedure proposed by Boudt et al. (2011). Our results suggest that, compared to the mean and volatility results, the response of jumps to the public communications is very weak and limited, especially during the EU crisis period. However, the responses during non-crisis periods are much stronger. On average, macroeconomic news increases jump magnitude. Change in nonfarm payrolls, FOMC rate decision, GDP Annual QoQ Advance and Bank of England Rate consistently provide significant results for all three currencies.

A natural direction for future research is to explore how other attributes, such as the gender, age and nationality of the speaker, influence the market. Moreover, although in this work, we restrict ourselves in studying the impact of each attribute separately, we are also interested in investigating how multiple attributes can jointly affect the market. Finally, it would be possible to analyze how other currencies like CAD impact the market and compare if there is any support or difference to our results.

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Table 1: Descriptive statistics of 5-minute returns for EUR/USD, GBP/USD, and JPY/USD

| Currency | EUR/USD | GBP/USD | JPY/USD |
|---|---|---|---|
| Mean (at unit of $10^{-5}$) | 1.060 | 2.530 | -3.320 |
| Maximum | 1.126 | 1.036 | 1.792 |
| Minimum | -0.992 | -1.214 | -2.871 |
| Standard deviation | 0.038 | 0.038 | 0.042 |
| Skewness | 0.040 | -0.159 | -0.046 |
| Kurtosis | 21.848 | 26.372 | 74.891 |
| Number of observations | 681,115 | 681,115 | 681,115 |
| Autocorrelation of order 1 | -0.020*** | -0.027*** | -0.035*** |
| Autocorrelation of order 2 | -0.006*** | -0.007*** | -0.011*** |
| Autocorrelation of order 3 | -0.000*** | -0.005*** | -0.002*** |
| Autocorrelation of order 4 | -0.002*** | -0.002*** | -0.000*** |

Note: The return is calculated by taking the log difference of bid-ask mid spread for the last observations between current and last interval. EUR/USD, GBP/USD and JPY/USD are three currency pairs: Euro/US Dollar, Pound/US Dollar and Yen/US Dollar. The 5-minute returns are presented in percentage. *** denotes that, for the first and second autocorrelation order, the returns are significantly different from zero at 5% significance level.

Table 2: Macroeconomic news titles

| News title | C | Obs | Start date | End date | Release Time | (Andersen et al.) 2003a |
|---|---|---|---|---|---|---|
| Business Inventories | US | 124 | 11/12/2004 | 02/12/2015 | 8:00:00AM/ 10:00:00 AM | 15. Business inventories |
| CPI Ex Food and Energy MoM | US | 123 | 11/17/2004 | 02/26/2015 | 8:30:00 AM | 19. Consumer price index |
| Change in Nonfarm Payrolls | US | 124 | 11/05/2004 | 02/06/2015 | 8:30:00 AM | 4. Nonfarm payroll employment |
| Construction Spending MoM | US | 124 | 11/01/2004 | 02/02/2015 | 10:00:00 AM | 13. Construction spending |
| Consumer Confidence Index | US | 124 | 11/30/2004 | 02/24/2015 | 10:00:00 AM | 20. Consumer confidence index |
| FOMC Rate Decision | US | 83 | 11/10/2004 | 01/28/2015 | 2:15:00 PM /14:00:00PM | 24. Target federal funds rate |
| Factory Orders | US | 124 | 11/03/2004 | 02/03/2015 | 10:00:00 AM | 14. Factory orders |
| GDP Annualized QoQ-Adv. | US | 41 | 01/28/2005 | 01/30/2015 | 8:30:00 AM | 3. GDP final |
| GDP Annualized QoQ-Prelim. | US | 41 | 02/25/2005 | 02/27/2015 | 8:30:00 AM | 2. GDP preliminary |
| Housing Starts | US | 121 | 02/16/2005 | 02/18/2015 | 8:30:00 AM | 22. Housing starts |
| Industrial Production MoM | US | 124 | 11/17/2004 | 02/18/2015 | 9:15:00 AM | 6. Industrial production |
| Initial Jobless Claims | US | 539 | 11/04/2004 | 02/26/2015 | 8:30:00 AM | 25. Initial unemployment claims |
| New Home Sales | US | 124 | 11/24/2004 | 02/25/2015 | 10:00:00 AM | 11. New home sales |
| PPI MoM | US | 111 | 11/16/2004 | 01/15/2014 | 8:30:00 AM | 18. Producer price index |
| Personal Con.-Prelim. | US | 41 | 11/30/2004 | 02/27/2015 | 8:30:00 AM | 10. Personal consumption expenditures |
| Retail Sales Ex Auto MoM | US | 124 | 11/12/2004 | 02/12/2015 | 8:30:00 AM | 5. Retail sales |
| Trade Balance | US | 124 | 11/10/2004 | 02/05/2015 | 9:30:00 AM | 17. Trade balance |
| GDP SA QoQ-Prelim. | GE | 123 | 11/04/2004 | 02/05/2015 | 6:00:00 AM | 29. GDP |
| Imports QoQ | GE | 41 | 11/23/2004 | 02/24/2015 | 2:00:00AM | 40. Import prices |
| Industrial Production SA MoM-Prelim. | GE | 124 | 11/05/2004 | 02/06/2015 | 2:00:00AM/ 6:00:00 AM | 32. Industrial production |
| PPI MoM | GE | 124 | 11/18/2004 | 02/20/2015 | 2:00:00AM | 38. Producer prices |
| Retail Sales MoM | GE | 121 | 11/02/2004 | 01/30/2015 | 2:00:00AM | 31. Retail sales |
| BoE Bank Rate | UK | 123 | 11/04/2004 | 02/05/2015 | 7:00:00 AM | |
| CPI MoM | UK | 124 | 11/16/2004 | 02/17/2015 | 4:30:00 AM | |
| GDP QoQ-Adv. | UK | 41 | 01/26/2005 | 01/27/2015 | 4:30:00 AM | |
| Industrial Production MoM | UK | 124 | 11/05/2004 | 02/10/2015 | 4:30:00 AM | |
| Retail Sales Ex Auto MoM | UK | 91 | 07/17/2007 | 02/17/2015 | 4:30:00 AM | |
| Visible Trade Balance GBP/Mn | UK | 124 | 11/09/2004 | 02/06/2015 | 4:30:00 AM | |
| GDP Nominal SA QoQ-Prelim. | JP | 31 | 08/12/2007 | 02/15/2015 | 19:50:00PM/ 18:50:00 PM | |
| Housing Starts YoY | JP | 123 | 11/30/2004 | 02/27/2015 | 12:00:00AM/ 1:00:00 AM | |
| Retail Trade YoY | JP | 122 | 11/28/2004 | 02/26/2015 | 18:50:00PM/ 19:50:00 PM | |

Note: In table 2, obs stands for number of observations. Advance/Preliminary/Final represents the Advance, Preliminary and Final report for the news announced for several times. SA/NSA means Seasonal Adjusted or Non-Seasonal Adjusted figures. YoY, MoM, QoQ represents the comparison between the current released figure and the previous figure Year over Year, Month over Month and Quarter over Quarter. The right column shows the news title from Andersen et al. (2003).

Table 3 Panel A: 5-minute EUR/USD returns aggregation by content

| | | US Crisis | | | EU Crisis | | | Non-Crisis | | | Whole Period | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Content** | **C** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** |
| Economy | US | 168 | 0.002 | 0.106 | 115 | -0.005 | 0.083 | 634 | 0.000 | 0.066 | 917 | 0.000 | 0.081 |
| FOMC | US | 15 | 0.051 | 0.336 | 23 | -0.047 | 0.247 | 84 | -0.002 | 0.243 | 122 | -0.004 | 0.282 |
| Monetary | US | 22 | -0.020 | 0.069 | 22 | -0.007 | 0.038 | 140 | -0.002 | 0.080 | 184 | -0.005 | 0.076 |
| Real estate | US | 46 | 0.008 | 0.162 | 16 | -0.003 | 0.046 | 107 | 0.006 | 0.130 | 169 | 0.006 | 0.144 |
| Investment | US | 28 | 0.017 | 0.139 | 2 | 0.001 | 0.014 | 74 | 0.005 | 0.083 | 104 | 0.008 | 0.093 |
| Risk | US | 14 | -0.019 | 0.051 | 1 | 0.000 | 0.000 | 41 | -0.010 | 0.051 | 56 | -0.012 | 0.058 |
| Regulation | US | 16 | 0.002 | 0.117 | 6 | 0.031 | 0.060 | 45 | -0.006 | 0.065 | 67 | -0.001 | 0.083 |
| Economy | EU | 18 | -0.007 | 0.134 | 19 | -0.008 | 0.050 | 133 | -0.002 | 0.054 | 170 | -0.003 | 0.067 |
| Monetary | EU | 13 | -0.014 | 0.032 | 13 | -0.028 | 0.033 | 151 | -0.003 | 0.056 | 177 | -0.006 | 0.053 |
| Real estate | EU | 1 | -0.018 | -0.018 | 0 | 0.000 | 0.000 | 7 | 0.008 | 0.052 | 8 | 0.004 | 0.050 |
| investment | EU | 0 | 0.000 | 0.000 | 3 | -0.002 | 0.009 | 17 | 0.011 | 0.058 | 20 | 0.009 | 0.055 |
| Risk | EU | 1 | -0.020 | -0.020 | 0 | 0.000 | 0.000 | 1 | -0.042 | -0.042 | 2 | -0.031 | -0.021 |
| Regulation | EU | 1 | 0.131 | 0.131 | 2 | -0.014 | 0.021 | 10 | -0.014 | 0.053 | 13 | -0.003 | 0.097 |
| Economy | UK | 6 | 0.037 | 0.108 | 3 | 0.030 | 0.057 | 26 | -0.002 | 0.032 | 35 | 0.008 | 0.100 |
| Monetary | UK | 6 | 0.035 | 0.164 | 0 | 0.000 | 0.000 | 15 | -0.017 | 0.020 | 21 | -0.002 | 0.041 |
| Real estate | UK | 0 | 0.000 | 0.000 | 0 | 0.000 | 0.000 | 4 | -0.007 | 0.012 | 4 | -0.007 | 0.012 |
| Risk | UK | 0 | 0.000 | 0.000 | 0 | 0.000 | 0.000 | 1 | -0.004 | -0.004 | 1 | -0.004 | -0.004 |
| Economy | JP | 0 | 0.000 | 0.000 | 0 | 0.000 | 0.000 | 5 | 0.003 | 0.011 | 5 | 0.003 | 0.011 |
| Real estate | JP | 0 | 0.000 | 0.000 | 0 | 0.000 | 0.000 | 2 | 0.010 | 0.011 | 2 | 0.010 | 0.011 |
| Investment | JP | 0 | 0.000 | 0.000 | 1 | -0.040 | -0.040 | 0 | 0.000 | 0.000 | 1 | -0.040 | -0.040 |

Note: The table illustrates 5-minute EUR/USD returns aggregated by the content of public communications during the entire period, the US crisis period and the EU crisis period. C stands for country, obs stands for Number of public communications speak by each content category during each period, mean is the average return of each speaker, $95^{th}$ p means 95th percentile of return. Investment includes investment and development. Returns are in percentage.

Table 3 Panel B: 5-minute EUR/USD returns aggregation by institution

| | | US Crisis | | | EU Crisis | | | Non-Crisis | | | Whole Period | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Institution** | **C** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** |
| Fed | US | 293 | 0.000 | 0.120 | 317 | -0.004 | 0.063 | 1479 | -0.001 | 0.078 | 2089 | -0.001 | 0.083 |
| Treasury | US | 114 | 0.002 | 0.114 | 1 | -0.012 | -0.012 | 243 | 0.004 | 0.076 | 358 | 0.003 | 0.108 |
| ECB | EU | 334 | 0.003 | 0.116 | 362 | 0.004 | 0.076 | 1442 | -0.003 | 0.068 | 2138 | -0.001 | 0.081 |
| Bundesbank | EU | 6 | 0.029 | 0.160 | 16 | -0.004 | 0.106 | 78 | 0.007 | 0.070 | 100 | 0.006 | 0.090 |
| BOF | EU | 5 | 0.007 | 0.040 | 3 | -0.029 | -0.003 | 4 | 0.002 | 0.014 | 12 | -0.004 | 0.037 |
| BOE | UK | 59 | 0.005 | 0.096 | 80 | -0.007 | 0.050 | 354 | -0.002 | 0.067 | 493 | -0.002 | 0.071 |
| BOJ | JP | 37 | -0.011 | 0.040 | 31 | -0.004 | 0.023 | 143 | -0.001 | 0.041 | 211 | -0.003 | 0.039 |

Note: The table illustrates 5-minute EUR/USD returns aggregated by the Institution of public communications release during the entire period, the US crisis period and the EU crisis period. Institutions are picked as the most important central banks within each region. C stands for country, obs stands for Number of public communications speak by each content category during each period, mean is the average return of each speaker, $95^{th}$ p means 95th percentile of return, BOF stands for Bank of France, ECB stands for European Central Bank, BOE stands for Bank of England and BOJ stands for bank of Japan. Returns are in percentage.

Table 3 Panel C: 5-minute EUR/USD returns aggregation by position

| | | US Crisis | | | EU Crisis | | | Non-Crisis | | | Whole Period | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Position** | **C** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** |
| President | US | 181 | -0.002 | 0.108 | 201 | 0.000 | 0.068 | 860 | -0.001 | 0.076 | 1242 | -0.001 | 0.083 |
| Chairman | US | 101 | -0.002 | 0.122 | 43 | -0.018 | 0.074 | 326 | 0.002 | 0.110 | 470 | -0.001 | 0.116 |
| Secretary | US | 126 | 0.004 | 0.123 | 1 | -0.012 | -0.012 | 262 | 0.005 | 0.075 | 389 | 0.005 | 0.108 |
| BOG | US | 89 | 0.003 | 0.128 | 45 | 0.008 | 0.060 | 365 | -0.006 | 0.074 | 499 | -0.003 | 0.083 |
| Chief | US | 55 | 0.001 | 0.099 | 65 | -0.001 | 0.047 | 292 | -0.003 | 0.058 | 412 | -0.002 | 0.063 |
| Board member | US | 0 | 0.000 | 0.000 | 0 | 0.000 | 0.000 | 13 | -0.012 | 0.078 | 13 | -0.012 | 0.078 |
| President | EU | 108 | -0.002 | 0.126 | 102 | 0.001 | 0.096 | 461 | -0.005 | 0.078 | 671 | -0.004 | 0.101 |
| Chairman | EU | 17 | 0.025 | 0.120 | 8 | -0.021 | 0.029 | 39 | -0.001 | 0.050 | 64 | 0.003 | 0.054 |
| BOG | EU | 15 | 0.030 | 0.167 | 40 | -0.006 | 0.061 | 123 | 0.000 | 0.062 | 178 | 0.001 | 0.070 |
| Chief Exe | EU | 1 | 0.005 | 0.005 | 0 | 0.000 | 0.000 | 0 | 0.000 | 0.000 | 1 | 0.005 | 0.005 |
| Board member | EU | 0 | 0.000 | 0.000 | 18 | 0.004 | 0.058 | 37 | 0.004 | 0.063 | 55 | 0.004 | 0.064 |
| Gov Council | EU | 65 | -0.017 | 0.090 | 28 | 0.005 | 0.078 | 194 | -0.003 | 0.065 | 287 | -0.005 | 0.077 |
| Chairman | UK | 0 | 0.000 | 0.000 | 6 | -0.004 | 0.022 | 24 | 0.017 | 0.094 | 30 | 0.012 | 0.086 |
| BOG | UK | 8 | 0.006 | 0.045 | 8 | 0.005 | 0.046 | 51 | 0.007 | 0.070 | 67 | 0.007 | 0.067 |
| BOG | JP | 5 | -0.007 | 0.010 | 12 | 0.005 | 0.038 | 54 | -0.001 | 0.039 | 71 | 0.000 | 0.039 |
| Board member | JP | 9 | 0.013 | 0.080 | 7 | 0.001 | 0.014 | 40 | 0.000 | 0.036 | 56 | 0.002 | 0.046 |

Note: The table illustrates 5-minute JPY/USD returns aggregated by the Position of speakers during the entire period, the US crisis period and the EU crisis period. Positions are selected from major positions of central banks within each region, and the title of positions are derived from job description on the institution's website (e.g. ECB, Fed Treasury). C stands for country, obs stands for Number of public communications, mean is the average return of each speaker, $95^{th}$p means 95th percentile of return, Chief Exe is chief executive, BOG is Board of Governor, Gov Council means Member of Governing council. Returns are in percentage.

Table 3 Panel D: 5-minute EUR/USD returns aggregation by name

| | | US Crisis | | | EU Crisis | | | Non-Crisis | | | Whole Period | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Name** | **C** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** |
| Bernanke | US | 54 | 0.002 | 0.159 | 33 | -0.026 | 0.081 | 146 | 0.008 | 0.197 | 233 | 0.002 | 0.160 |
| Fisher | US | 23 | -0.002 | 0.137 | 26 | 0.001 | 0.068 | 124 | -0.002 | 0.035 | 173 | -0.002 | 0.068 |
| Lockhart | US | 21 | 0.009 | 0.081 | 32 | -0.007 | 0.067 | 71 | 0.000 | 0.061 | 124 | -0.001 | 0.076 |
| Lacker | US | 13 | -0.013 | 0.072 | 14 | 0.000 | 0.054 | 85 | 0.000 | 0.082 | 112 | -0.001 | 0.087 |
| Geithner | US | 24 | 0.026 | 0.158 | 2 | -0.018 | -0.013 | 78 | 0.002 | 0.093 | 104 | 0.007 | 0.141 |
| Trichet | EU | 66 | -0.017 | 0.100 | 9 | -0.007 | 0.087 | 227 | 0.001 | 0.087 | 302 | -0.004 | 0.099 |
| Dombret | EU | 9 | 0.002 | 0.117 | 48 | -0.006 | 0.127 | 91 | -0.020 | 0.109 | 148 | -0.014 | 0.140 |
| Weber | EU | 40 | 0.005 | 0.159 | 0 | 0.000 | 0.000 | 105 | 0.001 | 0.067 | 145 | 0.002 | 0.092 |
| Liebscher | EU | 26 | -0.019 | 0.078 | 20 | 0.005 | 0.076 | 78 | -0.008 | 0.070 | 124 | -0.008 | 0.077 |
| Mersch | EU | 19 | 0.037 | 0.158 | 29 | -0.012 | 0.053 | 63 | -0.001 | 0.052 | 111 | 0.003 | 0.081 |
| King | UK | 14 | 0.013 | 0.086 | 14 | 0.006 | 0.070 | 27 | -0.007 | 0.037 | 55 | 0.001 | 0.064 |
| Tucker | UK | 9 | 0.013 | 0.097 | 13 | -0.003 | 0.041 | 33 | -0.014 | 0.055 | 55 | -0.007 | 0.068 |
| Haldan | UK | 2 | 0.045 | 0.047 | 11 | -0.014 | 0.070 | 32 | 0.007 | 0.080 | 45 | 0.003 | 0.091 |
| Posen | UK | 0 | 0.000 | 0.000 | 6 | -0.004 | 0.022 | 22 | 0.013 | 0.097 | 28 | 0.009 | 0.089 |
| Bailey | UK | 3 | 0.020 | 0.045 | 4 | 0.026 | 0.130 | 20 | -0.048 | 0.044 | 27 | -0.030 | 0.065 |
| Fukui | JP | 0 | 0.000 | 0.000 | 0 | 0.000 | 0.000 | 15 | -0.004 | 0.024 | 15 | -0.004 | 0.024 |
| Shirakawa | JP | 2 | -0.017 | -0.002 | 5 | 0.001 | 0.026 | 5 | 0.034 | 0.137 | 12 | 0.012 | 0.090 |
| Kuroda | JP | 0 | 0.000 | 0.000 | 1 | 0.016 | 0.016 | 10 | -0.002 | 0.031 | 11 | 0.000 | 0.031 |
| Nishimura | JP | 2 | -0.007 | 0.004 | 2 | -0.001 | 0.002 | 7 | 0.000 | 0.137 | 11 | -0.001 | 0.109 |
| Yamaguchi | JP | 1 | 0.011 | 0.011 | 3 | 0.017 | 0.044 | 7 | -0.019 | 0.014 | 11 | -0.007 | 0.033 |

Note: The table illustrates 5-minute EUR/USD returns aggregated by the name of speakers during the entire period, the US crisis period and the EU crisis period. C stands for country, obs stands for Number of public communications speak by each speaker during each period, $95^{th}$ p means 95th percentile of return, mean is the average return of each speaker. The table presents the names only for the largest five number of observations within each country. The whole list of names is provided in Appendix A. Returns are in percentage.

Table 4 Panel A: 5-minute GBP/USD returns aggregation by content

| | | US Crisis | | | EU Crisis | | | Non-Crisis | | | Whole Period | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Content** | **Country** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** |
| Economy | US | 168 | 0.002 | 0.105 | 115 | -0.001 | 0.048 | 634 | 0.001 | 0.062 | 917 | 0.001 | 0.070 |
| FOMC | US | 15 | 0.057 | 0.287 | 23 | -0.039 | 0.158 | 84 | -0.002 | 0.200 | 122 | -0.002 | 0.212 |
| Monetary | US | 22 | -0.012 | 0.114 | 22 | -0.003 | 0.028 | 140 | -0.001 | 0.061 | 184 | -0.002 | 0.069 |
| Real estate | US | 46 | 0.009 | 0.166 | 16 | 0.001 | 0.037 | 107 | 0.006 | 0.101 | 169 | 0.007 | 0.108 |
| Investment | US | 28 | 0.009 | 0.101 | 2 | -0.005 | 0.001 | 74 | 0.004 | 0.068 | 104 | 0.005 | 0.090 |
| Risk | US | 14 | -0.019 | 0.025 | 1 | -0.011 | -0.011 | 41 | -0.005 | 0.031 | 56 | -0.009 | 0.031 |
| Regulation | US | 16 | 0.003 | 0.078 | 6 | 0.022 | 0.049 | 45 | -0.003 | 0.088 | 67 | 0.001 | 0.084 |
| Economy | EU | 18 | -0.031 | 0.065 | 19 | -0.011 | 0.032 | 133 | 0.000 | 0.063 | 170 | -0.004 | 0.062 |
| Monetary | EU | 13 | -0.010 | 0.041 | 13 | -0.018 | 0.041 | 151 | 0.001 | 0.056 | 177 | -0.002 | 0.054 |
| Real estate | EU | 1 | -0.032 | -0.032 | 0 | 0.000 | 0.000 | 7 | -0.007 | 0.057 | 8 | -0.010 | 0.054 |
| Investment | EU | 0 | 0.000 | 0.000 | 3 | 0.001 | 0.026 | 17 | 0.002 | 0.033 | 20 | 0.002 | 0.031 |
| Risk | EU | 1 | -0.010 | -0.010 | 0 | 0.000 | 0.000 | 1 | -0.002 | -0.002 | 2 | -0.006 | -0.002 |
| Regulation | EU | 1 | 0.128 | 0.128 | 2 | 0.004 | 0.032 | 10 | -0.006 | 0.053 | 13 | 0.005 | 0.104 |
| Economy | UK | 6 | 0.056 | 0.158 | 3 | 0.012 | 0.028 | 26 | -0.021 | 0.054 | 35 | -0.005 | 0.093 |
| Monetary | UK | 6 | 0.066 | 0.344 | 0 | 0.000 | 0.000 | 15 | 0.025 | 0.275 | 21 | 0.037 | 0.343 |
| Real estate | UK | 0 | 0.000 | 0.000 | 0 | 0.000 | 0.000 | 4 | -0.003 | 0.030 | 4 | -0.003 | 0.030 |
| Risk | UK | 0 | 0.000 | 0.000 | 0 | 0.000 | 0.000 | 1 | -0.017 | -0.017 | 1 | -0.017 | -0.017 |
| Economy | JP | 0 | 0.000 | 0.000 | 0 | 0.000 | 0.000 | 5 | 0.009 | 0.022 | 5 | 0.009 | 0.022 |
| Real estate | JP | 0 | 0.000 | 0.000 | 0 | 0.000 | 0.000 | 2 | 0.005 | 0.020 | 2 | 0.005 | 0.020 |
| Investment | JP | 0 | 0.000 | 0.000 | 1 | -0.026 | -0.026 | 0 | 0.000 | 0.000 | 1 | -0.026 | -0.026 |

Note: The table illustrates 5-minute GBP/USD returns aggregated by the content of public communications during the entire period, the US crisis period and the EU crisis period. C stands for country, obs stands for Number of public communications speak by each content category during each period, mean is the average return of each speaker, $95^{th}$ p means 95th percentile of return. Investment includes investment and development. Returns are in percentage.

Table 4 Panel B: 5-minute GBP/USD returns aggregation by institution

| | | US Crisis | | | EU Crisis | | | Non-Crisis | | | Whole Period | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Institution** | **C** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** |
| Fed | US | 293 | -0.001 | 0.104 | 317 | 0.001 | 0.054 | 1479 | -0.001 | 0.061 | 2089 | -0.001 | 0.069 |
| Treasury | US | 114 | 0.002 | 0.099 | 1 | 0.036 | 0.036 | 243 | 0.004 | 0.092 | 358 | 0.003 | 0.094 |
| ECB | EU | 334 | 0.004 | 0.130 | 362 | 0.001 | 0.062 | 1442 | -0.001 | 0.063 | 2138 | 0.000 | 0.073 |
| Bundesbank | EU | 6 | -0.017 | 0.139 | 16 | -0.002 | 0.062 | 78 | 0.005 | 0.055 | 100 | 0.002 | 0.062 |
| BOF | EU | 5 | 0.026 | 0.057 | 3 | 0.001 | 0.030 | 4 | -0.005 | 0.007 | 12 | 0.009 | 0.050 |
| BOE | UK | 59 | -0.009 | 0.170 | 80 | -0.011 | 0.078 | 354 | -0.003 | 0.102 | 493 | -0.005 | 0.110 |
| BOJ | JP | 37 | -0.017 | 0.050 | 31 | 0.000 | 0.021 | 143 | 0.001 | 0.044 | 211 | -0.002 | 0.046 |

Note: The table illustrates 5-minute GBP/USD returns aggregated by the Institution of public communications release during the entire period, the US crisis period and the EU crisis period. Institutions are picked as the most important central banks within each region. C stands for country, obs stands for Number of public communications speak by each content category during each period, mean is the average return of each speaker, $95^{th}$p means 95th percentile of return. BOF stands for Bank of France, ECB stands for European Central Bank, BOE stands for Bank of England and BOJ stands for bank of Japan. Returns are in percentage. Returns are in percentage.

Table 4 Panel C: 5-minute GBP/USD returns aggregation by position

| | | US Crisis | | | EU Crisis | | | Non-Crisis | | | Whole Period | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Position** | **C** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** |
| President | US | 181 | 0.003 | 0.136 | 201 | 0.002 | 0.052 | 860 | -0.002 | 0.056 | 1242 | -0.001 | 0.071 |
| Chairman | US | 101 | -0.010 | 0.124 | 43 | -0.011 | 0.035 | 326 | 0.003 | 0.106 | 470 | -0.001 | 0.109 |
| Secretary | US | 126 | 0.008 | 0.100 | 1 | 0.036 | 0.036 | 262 | 0.005 | 0.093 | 389 | 0.006 | 0.095 |
| BOG | US | 89 | -0.006 | 0.073 | 45 | 0.013 | 0.061 | 365 | -0.003 | 0.073 | 499 | -0.002 | 0.074 |
| Chief | US | 55 | -0.003 | 0.104 | 65 | -0.002 | 0.034 | 292 | -0.003 | 0.047 | 412 | -0.003 | 0.054 |
| Board member | US | 0 | 0.000 | 0.000 | 0 | 0.000 | 0.000 | 13 | -0.007 | 0.052 | 13 | -0.007 | 0.052 |
| President | EU | 108 | 0.001 | 0.134 | 102 | -0.005 | 0.058 | 461 | 0.000 | 0.069 | 671 | 0.000 | 0.079 |
| Chairman | EU | 17 | 0.016 | 0.132 | 8 | -0.007 | 0.032 | 39 | -0.005 | 0.050 | 64 | 0.000 | 0.072 |
| BOG | EU | 15 | 0.049 | 0.244 | 40 | 0.003 | 0.063 | 123 | 0.001 | 0.065 | 178 | 0.006 | 0.091 |
| Chief Exe | EU | 1 | 0.000 | 0.000 | 0 | 0.000 | 0.000 | 0 | 0.000 | 0.000 | 1 | 0.000 | 0.000 |
| Board member | EU | 0 | 0.000 | 0.000 | 18 | -0.001 | 0.059 | 37 | 0.009 | 0.057 | 55 | 0.006 | 0.059 |
| Gov Council | EU | 65 | 0.002 | 0.129 | 28 | 0.010 | 0.062 | 194 | -0.002 | 0.060 | 287 | 0.000 | 0.074 |
| Chairman | UK | 0 | 0.000 | 0.000 | 6 | -0.017 | 0.022 | 24 | -0.026 | 0.065 | 30 | -0.024 | 0.064 |
| BOG | UK | 8 | -0.019 | 0.007 | 8 | 0.011 | 0.097 | 51 | -0.001 | 0.086 | 67 | -0.002 | 0.094 |
| BOG | JP | 5 | -0.006 | 0.013 | 12 | 0.001 | 0.024 | 54 | 0.002 | 0.073 | 71 | 0.001 | 0.056 |
| Board member | JP | 9 | 0.011 | 0.067 | 7 | 0.004 | 0.021 | 40 | 0.003 | 0.040 | 56 | 0.004 | 0.049 |

Note: The table illustrates 5-minute JPY/USD returns aggregated by the Position of speakers during the entire period, the US crisis period and the EU crisis period. Positions are selected from major positions of central banks within each region, and the title of positions are derived from job description on the institution's website (e.g. ECB, Fed Treasury). C stands for country, obs stands for Number of public communications, $95^{th}$p means 95th percentile of return, mean is the average return of each speaker. Chief Exe is chief executive, BOG stands for Board of Governor, Gov Council means Member of Governing council. Returns are in percentage.

Table 4 Panel D: 5-minute GBP/USD returns aggregation by name

| | | US Crisis | | | EU Crisis | | | Non-Crisis | | | Whole Period | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Name** | **C** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** |
| Bernanke | US | 54 | 0.004 | 0.133 | 33 | -0.014 | 0.049 | 146 | 0.011 | 0.158 | 233 | 0.006 | 0.140 |
| Fisher | US | 23 | 0.015 | 0.186 | 26 | 0.005 | 0.065 | 124 | 0.001 | 0.053 | 173 | 0.004 | 0.058 |
| Lockhart | US | 21 | 0.007 | 0.136 | 32 | 0.002 | 0.051 | 71 | -0.003 | 0.039 | 124 | 0.000 | 0.055 |
| Lacker | US | 13 | 0.006 | 0.058 | 14 | 0.001 | 0.038 | 85 | -0.003 | 0.058 | 112 | -0.001 | 0.058 |
| Geithner | US | 24 | 0.019 | 0.146 | 2 | 0.004 | 0.033 | 78 | 0.001 | 0.095 | 104 | 0.005 | 0.098 |
| Trichet | EU | 66 | -0.001 | 0.135 | 9 | -0.008 | 0.040 | 227 | 0.001 | 0.071 | 302 | 0.000 | 0.089 |
| Dombret | EU | 9 | 0.009 | 0.064 | 48 | -0.014 | 0.068 | 91 | -0.002 | 0.096 | 148 | -0.005 | 0.086 |
| Weber | EU | 40 | -0.013 | 0.108 | 0 | 0.000 | 0.000 | 105 | 0.006 | 0.078 | 145 | 0.001 | 0.092 |
| Liebscher | EU | 26 | 0.016 | 0.175 | 20 | 0.004 | 0.047 | 78 | -0.007 | 0.059 | 124 | -0.001 | 0.066 |
| Mersch | EU | 19 | 0.034 | 0.150 | 29 | -0.012 | 0.046 | 63 | 0.000 | 0.060 | 111 | 0.003 | 0.073 |
| King | UK | 14 | -0.036 | 0.061 | 14 | -0.001 | 0.080 | 27 | -0.010 | 0.073 | 55 | -0.014 | 0.080 |
| Tucker | UK | 9 | 0.010 | 0.107 | 13 | 0.011 | 0.048 | 33 | -0.005 | 0.044 | 55 | 0.001 | 0.049 |
| Haldan | UK | 2 | 0.055 | 0.101 | 11 | -0.007 | 0.041 | 32 | -0.002 | 0.060 | 45 | -0.001 | 0.061 |
| Posen | UK | 0 | 0.000 | 0.000 | 6 | -0.017 | 0.022 | 22 | -0.033 | 0.061 | 28 | -0.029 | 0.058 |
| Bailey | UK | 3 | 0.000 | 0.010 | 4 | 0.023 | 0.108 | 20 | 0.006 | 0.184 | 27 | 0.008 | 0.166 |
| Fukui | JP | 0 | 0.000 | 0.000 | 0 | 0.000 | 0.000 | 15 | 0.003 | 0.041 | 15 | 0.003 | 0.041 |
| Shirakawa | JP | 2 | -0.030 | -0.005 | 5 | -0.003 | 0.007 | 5 | 0.030 | 0.090 | 12 | 0.006 | 0.070 |
| Kuroda | JP | 0 | 0.000 | 0.000 | 1 | 0.014 | 0.014 | 10 | 0.004 | 0.035 | 11 | 0.005 | 0.035 |
| Nishimura | JP | 2 | 0.008 | 0.011 | 2 | 0.002 | 0.003 | 7 | 0.020 | 0.126 | 11 | 0.014 | 0.110 |
| Yamaguchi | JP | 1 | 0.013 | 0.013 | 3 | 0.016 | 0.032 | 7 | -0.033 | -0.005 | 11 | -0.015 | 0.025 |

Note: The table illustrates 5-minute GBP/USD returns aggregated by the name of speakers during the entire period, the US crisis period and the EU crisis period. C stands for country, obs stands for Number of public communications speak by each content category during each period, mean is the average return of each speaker, $95^{th}$ p means 95th percentile of return. Returns are in percentage. The table presents the names only for the largest five number of observations within each country. The whole list of names is provided in Appendix A.

Table 5 Panel A: 5-minute JPY/USD returns aggregation by content

| | | US Crisis | | | EU Crisis | | | Non-Crisis | | | Whole Period | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Content** | **C** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** |
| Economy | US | 168 | 0.006 | 0.121 | 115 | 0.003 | 0.049 | 634 | 0.001 | 0.067 | 917 | 0.002 | 0.075 |
| FOMC | US | 15 | -0.045 | 0.170 | 23 | -0.043 | 0.209 | 84 | -0.013 | 0.229 | 122 | -0.023 | 0.234 |
| Monetary | US | 22 | 0.018 | 0.113 | 22 | -0.004 | 0.034 | 140 | 0.004 | 0.066 | 184 | 0.005 | 0.075 |
| Real estate | US | 46 | 0.021 | 0.128 | 16 | -0.020 | 0.023 | 107 | 0.004 | 0.112 | 169 | 0.006 | 0.127 |
| Investment | US | 28 | 0.012 | 0.062 | 2 | -0.016 | -0.014 | 74 | 0.001 | 0.071 | 104 | 0.003 | 0.070 |
| Risk | US | 14 | -0.010 | 0.060 | 1 | -0.026 | -0.026 | 41 | 0.003 | 0.076 | 56 | -0.001 | 0.084 |
| Regulation | US | 16 | -0.006 | 0.163 | 6 | -0.015 | 0.013 | 45 | -0.005 | 0.076 | 67 | -0.006 | 0.082 |
| Economy | EU | 18 | 0.003 | 0.097 | 19 | 0.013 | 0.061 | 133 | -0.001 | 0.056 | 170 | 0.001 | 0.063 |
| Monetary | EU | 13 | -0.017 | 0.074 | 13 | 0.011 | 0.082 | 151 | 0.000 | 0.061 | 177 | 0.000 | 0.064 |
| Real estate | EU | 1 | 0.049 | 0.049 | 0 | 0.000 | 0.000 | 7 | -0.002 | 0.036 | 8 | 0.004 | 0.044 |
| investment | EU | 0 | 0.000 | 0.000 | 3 | -0.003 | 0.020 | 17 | 0.005 | 0.049 | 20 | 0.004 | 0.048 |
| Risk | EU | 1 | -0.013 | -0.013 | 0 | 0.000 | 0.000 | 1 | 0.000 | 0.000 | 2 | -0.006 | -0.001 |
| Regulation | EU | 1 | 0.247 | 0.247 | 2 | -0.007 | 0.001 | 10 | -0.009 | 0.053 | 13 | 0.011 | 0.142 |
| Economy | UK | 6 | 0.005 | 0.092 | 3 | -0.023 | 0.001 | 26 | 0.005 | 0.058 | 35 | 0.002 | 0.077 |
| Monetary | UK | 6 | -0.011 | 0.029 | 0 | 0.000 | 0.000 | 15 | -0.013 | 0.042 | 21 | -0.012 | 0.042 |
| Real estate | UK | 0 | 0.000 | 0.000 | 0 | 0.000 | 0.000 | 4 | -0.005 | 0.009 | 4 | -0.005 | 0.009 |
| Risk | UK | 0 | 0.000 | 0.000 | 0 | 0.000 | 0.000 | 1 | 0.004 | 0.004 | 1 | 0.004 | 0.004 |
| Economy | JP | 0 | 0.000 | 0.000 | 0 | 0.000 | 0.000 | 5 | 0.017 | 0.072 | 5 | 0.017 | 0.072 |
| Real estate | JP | 0 | 0.000 | 0.000 | 0 | 0.000 | 0.000 | 2 | -0.006 | -0.001 | 2 | -0.006 | -0.001 |
| Investment | JP | 0 | 0.000 | 0.000 | 1 | 0.009 | 0.009 | 0 | 0.000 | 0.000 | 1 | 0.009 | 0.009 |

Note: The table illustrates 5-minute JPY/USD returns aggregated by the content of public communications during the entire period, the US crisis period and the EU crisis period. C stands for country, obs stands for Number of public communications speak by each content category during each period, mean is the average return of each speaker, $95^{th}$ p means 95th percentile of return. Investment includes investment and development. Returns are in percentage.

Table 5 Panel B: 5-minute JPY/USD Returns Aggregation by Institution

| | | US Crisis | | | EU Crisis | | | Non-Crisis | | | Whole Period | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Institution** | **C** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** |
| Fed | US | 293 | 0.008 | 0.128 | 317 | -0.001 | 0.052 | 1479 | -0.003 | 0.069 | 2089 | -0.001 | 0.076 |
| Treasury | US | 114 | 0.000 | 0.127 | 1 | 0.008 | 0.008 | 243 | 0.006 | 0.111 | 358 | 0.004 | 0.118 |
| ECB | EU | 334 | -0.003 | 0.122 | 362 | 0.000 | 0.059 | 1442 | 0.000 | 0.072 | 2138 | -0.001 | 0.082 |
| Bundesbank | EU | 6 | 0.068 | 0.192 | 16 | -0.008 | 0.049 | 78 | -0.002 | 0.056 | 100 | 0.001 | 0.077 |
| BOF | EU | 5 | -0.002 | 0.044 | 3 | -0.033 | -0.005 | 4 | -0.020 | 0.091 | 12 | -0.016 | 0.075 |
| BOE | UK | 59 | 0.000 | 0.103 | 80 | -0.002 | 0.045 | 354 | 0.000 | 0.070 | 493 | 0.000 | 0.073 |
| BOJ | JP | 37 | 0.007 | 0.075 | 31 | 0.010 | 0.069 | 143 | 0.005 | 0.072 | 211 | 0.006 | 0.078 |

Note: The table illustrates 5-minute JPY/USD returns aggregated by the Institution of public communications release during the entire period, the US crisis period and the EU crisis period. Institutions are picked as the most important central banks within each region. C stands for country, obs stands for Number of public communications speak by each content category during each period, mean is the average return of each speaker, $95^{th}$ p means 95th percentile of return. BOF stands for Bank of France, ECB stands for European Central Bank, BOE stands for Bank of England and BOJ stands for bank of Japan. Returns are in percentage.

Table 5 Panel C: 5-minute JPY/USD Returns Aggregation by Position

| | | US Crisis | | | EU Crisis | | | Non-Crisis | | | Whole Period | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Position** | **C** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** |
| President | US | 181 | -0.002 | 0.128 | 201 | 0.002 | 0.052 | 860 | -0.001 | 0.067 | 1242 | -0.001 | 0.073 |
| Chairman | US | 101 | 0.015 | 0.195 | 43 | -0.012 | 0.066 | 326 | 0.005 | 0.130 | 470 | 0.006 | 0.132 |
| Secretary | US | 126 | 0.005 | 0.171 | 1 | 0.008 | 0.008 | 262 | 0.006 | 0.076 | 389 | 0.006 | 0.128 |
| BOG | US | 89 | 0.013 | 0.170 | 45 | -0.004 | 0.044 | 365 | -0.006 | 0.079 | 499 | -0.002 | 0.086 |
| Chief | US | 55 | 0.013 | 0.107 | 65 | -0.008 | 0.030 | 292 | -0.004 | 0.061 | 412 | -0.002 | 0.069 |
| Board member | US | 0 | 0.000 | 0.000 | 0 | 0.000 | 0.000 | 13 | -0.003 | 0.051 | 13 | -0.003 | 0.051 |
| President | EU | 108 | 0.010 | 0.176 | 102 | -0.004 | 0.058 | 461 | 0.001 | 0.087 | 671 | 0.001 | 0.093 |
| Chairman | EU | 17 | -0.023 | 0.051 | 8 | -0.004 | 0.020 | 39 | -0.014 | 0.046 | 64 | -0.015 | 0.048 |
| BOG | EU | 15 | -0.047 | 0.110 | 40 | -0.007 | 0.044 | 123 | -0.004 | 0.080 | 178 | -0.008 | 0.069 |
| Chief Exe | EU | 1 | -0.024 | -0.024 | 0 | 0.000 | 0.000 | 0 | 0.000 | 0.000 | 1 | -0.024 | -0.024 |
| Board member | EU | 0 | 0.000 | 0.000 | 18 | -0.001 | 0.066 | 37 | 0.005 | 0.097 | 55 | 0.003 | 0.099 |
| Gov Council | EU | 65 | -0.009 | 0.086 | 28 | 0.001 | 0.070 | 194 | -0.003 | 0.061 | 287 | -0.004 | 0.071 |
| Chairman | UK | 0 | 0.000 | 0.000 | 6 | -0.015 | 0.008 | 24 | 0.010 | 0.056 | 30 | 0.005 | 0.054 |
| BOG | UK | 8 | -0.010 | 0.044 | 8 | 0.009 | 0.031 | 51 | 0.010 | 0.086 | 67 | 0.007 | 0.071 |
| BOG | JP | 5 | -0.019 | 0.017 | 12 | 0.016 | 0.074 | 54 | 0.008 | 0.088 | 71 | 0.008 | 0.088 |
| Board member | JP | 9 | 0.001 | 0.052 | 7 | 0.003 | 0.047 | 40 | 0.005 | 0.068 | 56 | 0.004 | 0.065 |

Note: The table illustrates 5-minute JPY/USD returns aggregated by the Position of speakers during the entire period, the US crisis period and the EU crisis period. Positions are selected from major positions of central banks within each region, and the title of positions are derived from job description on the institution's website (e.g. ECB, Fed Treasury). C stands for country, obs stands for Number of public communications speak by each content category during each period, mean is the average return of each speaker, $95^{th}$ p means 95th percentile of return. Chief Exe is chief executive; BOG represents Board of Governor; Gov Council means Member of Governing council. Returns are in percentage.

Table 5: Panel D-5-minute JPY/USD Returns Aggregation by Name

| | US Crisis | | | | EU Crisis | | | Non-Crisis | | | Whole Period | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Name** | **C** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** | **obs** | **mean** | **95th p** |
| Bernanke | US | 54 | 0.012 | 0.193 | 33 | -0.016 | 0.062 | 146 | 0.013 | 0.176 | 233 | 0.009 | 0.166 |
| Fisher | US | 23 | 0.000 | 0.110 | 26 | 0.006 | 0.042 | 124 | -0.002 | 0.066 | 173 | 0.000 | 0.075 |
| Lockhart | US | 21 | 0.002 | 0.108 | 32 | 0.001 | 0.047 | 71 | 0.004 | 0.068 | 124 | 0.003 | 0.067 |
| Lacker | US | 13 | -0.010 | 0.066 | 14 | -0.002 | 0.030 | 85 | 0.001 | 0.073 | 112 | 0.000 | 0.067 |
| Geithner | US | 24 | -0.005 | 0.167 | 2 | 0.014 | 0.019 | 78 | 0.007 | 0.115 | 104 | 0.005 | 0.128 |
| Trichet | EU | 66 | -0.003 | 0.158 | 9 | 0.007 | 0.028 | 227 | 0.006 | 0.110 | 302 | 0.004 | 0.113 |
| Dombret | EU | 9 | -0.002 | 0.088 | 48 | -0.010 | 0.061 | 91 | -0.012 | 0.055 | 148 | -0.011 | 0.061 |
| Weber | EU | 40 | 0.012 | 0.154 | 0 | 0.000 | 0.000 | 105 | -0.001 | 0.082 | 145 | 0.003 | 0.109 |
| Liebscher | EU | 26 | 0.005 | 0.082 | 20 | -0.011 | 0.060 | 78 | -0.001 | 0.060 | 124 | -0.002 | 0.074 |
| Mersch | EU | 19 | -0.068 | 0.053 | 29 | 0.003 | 0.048 | 63 | 0.001 | 0.062 | 111 | -0.010 | 0.058 |
| King | UK | 14 | -0.005 | 0.067 | 14 | 0.008 | 0.058 | 27 | 0.015 | 0.055 | 55 | 0.008 | 0.067 |
| Tucker | UK | 9 | 0.015 | 0.165 | 13 | -0.002 | 0.017 | 33 | -0.002 | 0.078 | 55 | 0.001 | 0.073 |
| Haldan | UK | 2 | -0.010 | -0.005 | 11 | 0.001 | 0.068 | 32 | 0.003 | 0.059 | 45 | 0.002 | 0.059 |
| Posen | UK | 0 | 0.000 | 0.000 | 6 | -0.015 | 0.008 | 22 | 0.008 | 0.056 | 28 | 0.003 | 0.054 |
| Bailey | UK | 3 | -0.031 | -0.008 | 4 | -0.003 | 0.009 | 20 | -0.013 | 0.066 | 27 | -0.013 | 0.061 |
| Fukui | JP | 0 | 0.000 | 0.000 | 0 | 0.000 | 0.000 | 15 | -0.005 | 0.033 | 15 | -0.005 | 0.033 |
| Shirakawa | JP | 2 | -0.011 | 0.017 | 5 | 0.020 | 0.044 | 5 | 0.045 | 0.112 | 12 | 0.026 | 0.102 |
| Kuroda | JP | 0 | 0.000 | 0.000 | 1 | 0.107 | 0.107 | 10 | 0.010 | 0.078 | 11 | 0.019 | 0.107 |
| Nishimura | JP | 2 | -0.037 | -0.013 | 2 | -0.021 | -0.021 | 7 | 0.002 | 0.075 | 11 | -0.009 | 0.067 |
| Yamaguchi | JP | 1 | 0.003 | 0.003 | 3 | 0.008 | 0.015 | 7 | 0.009 | 0.060 | 11 | 0.008 | 0.053 |

Note: The table illustrates 5-minute JPY/USD returns aggregated by the name of speakers during the entire period, the US crisis period and the EU crisis period. **C** stands for country, **obs** stands for Number of public communications speak by each content category during each period, **mean** is the average return of each speaker, **$95^{th}$ p** means 95th percentile of return. The table presents the speakers for the five largest number of observations within each country. The whole list of names is provided in Appendix A. Returns are in percentage.

Table 6 Panel A: The effect of the speakers' name on EUR/USD return

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **US Speakers** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Bies | | | | | 0.011* | 0.090 | | | |
| Bullard | 0.021** | 0.038 | -0.003 | 0.693 | 0.008* | 0.086 | 1.853*** | 1.180 | -1.175 |
| Evans | -0.014* | 0.094 | -0.022** | 0.039 | 0.003 | 0.597 | 0.575 | -1.714*** | -2.102** |
| Fisher | -0.016** | 0.047 | -0.009 | 0.221 | 0.000 | 0.949 | -0.608 | -1.850*** | -1.140 |
| Fischer | 0.067* | 0.093 | 0.007 | 0.857 | -0.013 | 0.305 | 1.097 | 1.911*** | 0.496 |
| Geithner | -0.020*** | 0.009 | 0.027 | 0.319 | 0.013*** | 0.003 | -1.683*** | -3.734* | 0.516 |
| Kashkari | 0.025** | 0.018 | | | | | | | |
| Kocherlakota | | | 0.006 | 0.548 | -0.012** | 0.022 | | | 1.634 |
| Kohn | 0.017* | 0.064 | | | -0.010 | 0.102 | | 2.456** | |
| Kimmitt | 0.009 | 0.470 | | | 0.040*** | 0.004 | | -1.635 | |
| Lacker | 0.018* | 0.090 | -0.001 | 0.897 | -0.001 | 0.783 | 0.000 | 1.681*** | -0.016 |
| Lockhart | -0.032*** | 0.000 | -0.001 | 0.904 | 0.000 | 0.971 | 0.000 | -3.437* | -0.121 |
| Pianalto | -0.037** | 0.011 | 0.012 | 0.194 | 0.004 | 0.481 | -2.849* | -2.640* | 0.781 |
| Plosser | -0.047*** | 0.000 | -0.002 | 0.851 | -0.002 | 0.701 | -3.628* | -4.338* | 0.026 |
| Ryan | 0.011 | 0.347 | | | 0.050*** | 0.009 | | -1.740*** | |
| Santomero | | | | | -0.038*** | 0.000 | | 2.244** | 0.527 |
| Stein | 0.040*** | 0.005 | -0.008 | 0.644 | 0.002 | 0.801 | 4.614* | 2.390** | 0.000 |
| Swagel | -0.009 | 0.579 | | | -0.085*** | 0.002 | -1.719*** | | |
| Tarullo | 0.106*** | 0.000 | -0.007 | 0.552 | 0.000 | 0.996 | 0.525 | 4.690* | -0.519 |
| Volcker | -0.033* | 0.077 | 0.014 | 0.492 | -0.007 | 0.566 | -0.014 | -1.150 | 0.889 |
| Yellen | 0.017* | 0.061 | 0.008 | 0.610 | 0.002 | 0.633 | 0.000 | 1.462 | 0.352 |

Note: The table shows public communication effects from US on the EUR/USD returns by name from the mean equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 6 Panel B: The effect of the speakers' name on EUR/USD return

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **EU Speakers** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Almunia | 0.022* | 0.088 | 0.022 | 0.417 | -0.001 | 0.871 | 0.014 | 0.000 | 0.823 |
| Constancio | 0.019** | 0.049 | -0.017* | 0.061 | 0.007 | 0.125 | 2.715* | 0.000 | -2.365** |
| Dombret | 0.005*** | 0.000 | -0.029** | 0.021 | 0.000 | 0.964 | 1.400 | 0.000 | -1.936*** |
| Draghi | 0.028** | 0.027 | 0.010* | 0.082 | -0.006 | 0.113 | 2.083** | 2.585* | 2.337** |
| Gonzalez | 0.015* | 0.066 | 0.017 | 0.201 | 0.002 | 0.596 | -0.912 | 1.336 | 1.032 |
| Mersch | -0.025* | 0.086 | 0.003 | 0.836 | 0.000 | 0.991 | -1.943*** | -1.649 | 0.201 |
| Nowotny | 0.021** | 0.016 | -0.002 | 0.736 | -0.001 | 0.803 | 2.083** | 2.230** | -0.140 |
| Noyer | 0.021** | 0.034 | 0.006 | 0.630 | 0.003 | 0.694 | 0.912 | 1.510 | 0.237 |
| Orphanides | -0.018 | 0.301 | 0.029* | 0.087 | 0.019* | 0.064 | -1.943*** | -1.854*** | 0.488 |
| Papademos | 0.037*** | 0.000 | 0.000 | 0.999 | 0.003 | 0.694 | 0.000 | 2.674* | 0.000 |
| Stark | 0.014 | 0.116 | -0.036*** | 0.002 | 0.009 | 0.126 | 3.424* | 0.513 | -3.475* |
| Trichet | -0.024*** | 0.000 | 0.004 | 0.764 | 0.003 | 0.197 | -2.031** | -4.991* | 0.042 |
| Tumpel | -0.016** | 0.023 | | | 0.003 | 0.500 | | -2.262** | |
| Weber | -0.015** | 0.011 | | | -0.004 | 0.326 | | -1.652*** | |
| **UK Speakers** | | | | | | | | | |
| Bailey | 0.043* | 0.083 | 0.008 | 0.671 | 0.008 | 0.356 | 1.118 | 1.341 | 0.011 |
| Carney | -0.018 | 0.628 | 0.000 | 0.999 | -0.014* | 0.068 | 0.000 | -0.109 | 0.000 |
| Tucker | -0.008 | 0.517 | 0.012 | 0.252 | -0.016** | 0.022 | -1.233 | 0.495 | 2.194** |
| | **US Crisis** | | **EU Crisis** | | **Non-Crisis** | | **Wald Test** | | |
| **US Macro News** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Δ Nonfarm Payroll | -0.007 | 0.386 | 0.005 | 0.671 | -0.020*** | 0.000 | -0.840 | 1.481 | 2.036** |
| Cons. Spending | -0.037*** | 0.000 | 0.008 | 0.256 | 0.001 | 0.738 | -4.184* | -4.231* | 0.806 |
| Cons. Conf. Index | 0.010 | 0.129 | -0.012 | 0.126 | -0.015*** | 0.002 | 2.147** | 3.073* | 0.314 |
| FOMC Rate Dec. | 0.046*** | 0.000 | -0.047*** | 0.000 | -0.021*** | 0.000 | 6.024* | 5.620* | -2.136** |
| Factory Orders | 0.013** | 0.037 | -0.024** | 0.038 | -0.012*** | 0.006 | 2.806* | 3.298* | -0.946 |
| GDP-Adv. | -0.022** | 0.038 | -0.028 | 0.154 | -0.005 | 0.537 | 0.253 | -1.290 | -1.084 |
| GDP-Prelim. | 0.075*** | 0.000 | -0.049** | 0.021 | -0.004 | 0.632 | 4.678* | 4.378* | -1.962** |
| New Home Sales | 0.023 | 0.174 | -0.086*** | 0.003 | -0.009** | 0.011 | 3.231* | 1.847*** | -2.619* |
| PPI MoM | -0.031*** | 0.001 | -0.005 | 0.756 | 0.001 | 0.736 | -1.536 | -3.205* | -0.392 |
| Person Con. Prelim. | -0.091*** | 0.000 | 0.044** | 0.030 | 0.010 | 0.254 | -5.285* | -5.696* | 1.560 |
| Retail Sales Ex Auto | 0.037*** | 0.000 | 0.009 | 0.513 | -0.009** | 0.040 | 1.855*** | 6.097* | 1.262 |
| Trade Balance | 0.020*** | 0.008 | -0.004 | 0.643 | -0.004 | 0.349 | 2.011** | 2.782* | -0.036 |
| **GE Macro News** | | | | | | | | | |
| GDP SA Prelim | 0.022*** | 0.000 | 0.011 | 0.424 | 0.000 | 0.942 | 0.733 | 2.992* | 0.782 |
| Imports QoQ | -0.028*** | 0.004 | 0.008 | 0.792 | -0.004 | 0.576 | -1.109 | -1.956*** | 0.386 |
| Retail Sales MoM | 0.020** | 0.028 | -0.028*** | 0.004 | 0.003 | 0.388 | 3.617* | 1.715*** | -3.024* |
| **UK Macro News** | | | | | | | | | |
| BOE Bank Rate | 0.004 | 0.316 | 0.000 | 0.999 | 0.026*** | 0.002 | 0.000 | -2.414** | -2.336** |
| CPI MoM | -0.005 | 0.582 | -0.043** | 0.025 | 0.003 | 0.529 | 1.833*** | -0.805 | -1.933*** |
| GDP QoQ-Adv. | 0.093*** | 0.000 | 0.025* | 0.066 | -0.005 | 0.517 | 2.982* | 5.064* | 1.341 |
| Retail Sales Ex Auto | -0.001 | 0.900 | 0.006 | 0.734 | -0.019*** | 0.009 | -0.360 | 1.605 | 0.146 |
| Visible Trade Balan. | -0.033** | 0.044 | -0.002 | 0.700 | -0.003 | 0.460 | -1.778*** | -1.756*** | 0.000 |

Note: The table shows public communication from EU, UK and macroeconomic news effects on the EUR/USD returns by name from the mean equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance of 10%, 5% and 1% significance level respectively.

Table 7 Panel A: The effect of the speakers' name on GBP/USD return

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **US Speakers** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US&EU** | **US&NON** | **EU&NON** |
| Barr | 0.071** | 0.015 | | | -0.001 | 0.886 | | 2.403** | |
| Bernanke | -0.009** | 0.015 | 0.008 | 0.118 | 0.000 | 0.998 | -2.728* | -2.086** | 0.900 |
| Duke | -0.043*** | 0.000 | -0.016 | 0.109 | -0.006 | 0.241 | -1.824*** | -3.005* | -2.062** |
| Evans | -0.001 | 0.910 | -0.014* | 0.069 | 0.003 | 0.328 | 1.353 | -0.583 | 0.000 |
| Ferguson | -0.081*** | 0.008 | | | -0.006 | 0.489 | | -2.373** | |
| Fisher | -0.014** | 0.017 | -0.003 | 0.609 | -0.002 | 0.416 | -1.382 | -1.864*** | -1.381 |
| Geithner | -0.014** | 0.011 | -0.023 | 0.239 | 0.004 | 0.168 | 0.423 | -2.906* | -0.912 |
| Greenspan | -0.012 | 0.236 | 0.018 | 0.510 | -0.007* | 0.088 | -1.025 | -0.424 | 0.282 |
| Hoenig | 0.030*** | 0.000 | -0.009 | 0.740 | -0.001 | 0.781 | 1.384 | 3.549* | -0.815 |
| Kashkari | 0.039*** | 0.000 | | | 0.000 | 0.999 | | 0.000 | |
| Kohn | 0.019*** | 0.004 | | | 0.001 | 0.818 | | 2.267** | |
| Krueger | 0.000 | 0.999 | | | -0.015 | 0.070* | | 0.000 | |
| Levey | -0.047** | 0.016 | | | 0.001 | 0.963 | | -2.115** | |
| Pianalto | -0.090*** | 0.000 | 0.005 | 0.476 | -0.002 | 0.694 | -7.575* | -7.933* | 1.195 |
| Plosser | -0.025*** | 0.000 | -0.004 | 0.509 | 0.004 | 0.208 | -2.314** | -3.885* | -0.558 |
| Rosengren | -0.015** | 0.031 | 0.008 | 0.277 | 0.003 | 0.507 | -2.291** | -2.170** | 0.000 |
| Santomero | | | | | -0.017** | 0.014 | | | |
| Stern | -0.018*** | 0.006 | | | -0.007 | 0.374 | | -1.167 | |
| Stein | 0.026** | 0.013 | -0.006 | 0.635 | 0.005 | 0.435 | 1.961** | 1.715*** | -1.036 |
| Tarullo | 0.034** | 0.030 | -0.002 | 0.795 | 0.007* | 0.093 | 2.063** | 1.656*** | -2.159** |
| Volcker | 0.036*** | 0.009 | 0.037*** | 0.010 | 0.000 | 0.963 | -0.042 | 2.165** | 1.394 |
| **UK Speakers** | | | | | | | | | |
| Bailey | 0.066*** | 0.000 | -0.011 | 0.433 | 0.000 | 0.983 | 3.324* | 3.373* | 0.000 |
| Carney | 0.056** | 0.042 | | | 0.005 | 0.355 | | 1.808*** | |
| Haldan | -0.051** | 0.017 | -0.008 | 0.319 | -0.007 | 0.143 | -1.859*** | -2.002** | -1.052 |
| King | -0.012 | 0.148 | 0.000 | 0.993 | -0.010* | 0.076 | -1.070 | -0.211 | 1.711*** |
| Tucker | -0.015 | 0.112 | 0.007 | 0.382 | -0.009* | 0.068 | -1.783*** | -0.569 | 0.032 |

Note: The table shows public communication effects on the EUR/USD returns by name from the mean equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 7 Panel B: The effect of the speaker's name on GBP/USD return

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **EU Speakers** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US&EU** | **US&NON** | **EU&NON** |
| Williams | 0.000 | 0.999 | -0.011** | 0.049 | -0.001 | 0.922 | 0.000 | 0.000 | -1.394 |
| Hurley | 0.027** | 0.032 | 0.000 | 0.999 | -0.002 | 0.888 | 0.000 | 1.700*** | 0.000 |
| Liebscher | -0.027*** | 0.006 | 0.000 | 0.999 | 0.000 | 0.984 | 0.000 | -2.459** | -0.464 |
| Liikanen | 0.013** | 0.016 | 0.000 | 0.982 | 0.003 | 0.280 | 1.577 | 1.564 | -0.175 |
| Mersch | -0.042*** | 0.000 | -0.002 | 0.852 | -0.004 | 0.229 | -2.806* | -3.511* | 0.035 |
| Nowotny | 0.038*** | 0.000 | 0.000 | 0.964 | 0.000 | 0.898 | 4.696* | 5.319* | -0.570 |
| Noyer | -0.012* | 0.084 | -0.009 | 0.311 | -0.003 | 0.498 | -0.255 | -1.029 | -1.178 |
| Ordonez | -0.003 | 0.610 | 0.010 | 0.534 | -0.010* | 0.050 | -0.774 | 0.732 | 0.673 |
| Orphanides | 0.017 | 0.175 | 0.010 | 0.404 | 0.020*** | 0.008 | 0.364 | -0.236 | 0.000 |
| Papademos | 0.026*** | 0.001 | 0.000 | 0.999 | -0.001 | 0.833 | 0.000 | 2.884* | 0.000 |
| Quaden | -0.037*** | 0.000 | 0.000 | 0.999 | -0.002 | 0.734 | 0.000 | -2.968* | 0.905 |
| Smaghi | -0.021*** | 0.000 | -0.011 | 0.473 | 0.003 | 0.340 | -0.580 | -3.804* | -1.114 |
| Trichet | -0.013*** | 0.000 | 0.010 | 0.286 | -0.001 | 0.727 | -2.295** | -3.082* | 0.000 |
| Weber | -0.011** | 0.011 | 0.000 | 0.999 | -0.003 | 0.345 | 0.000 | -1.667*** | 0.000 |
| Wellink | -0.019* | 0.060 | 0.000 | 0.999 | 0.008 | 0.307 | 0.000 | -2.098** | -0.724 |
| | **US Crisis** | | **EU Crisis** | | **Non-Crisis** | | **Wald Test** | | |
| **US Macro News** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US&EU** | **US&NON** | **EU&NON** |
| Business Inventories | 0.026*** | 0.000 | 0.005 | 0.547 | 0.004 | 0.138 | 2.237** | 3.445* | 2.901* |
| Δ in Nonfarm Payrolls | 0.009 | 0.104 | -0.035*** | 0.000 | -0.010*** | 0.001 | 4.436* | 2.986* | -0.530 |
| Construction Spending | 0.010* | 0.078 | 0.004 | 0.467 | 0.007** | 0.024 | 0.807 | 0.464 | -0.502 |
| Consumer Conf. Index | 0.017*** | 0.000 | -0.004 | 0.443 | -0.008** | 0.025 | 2.848* | 4.165* | 0.780 |
| FOMC Rate Decision | 0.062*** | 0.000 | -0.015* | 0.055 | -0.008** | 0.020 | 6.819* | 7.977* | -1.616 |
| Factory Orders | 0.000 | 0.927 | 0.009 | 0.300 | -0.006* | 0.071 | -0.958 | 0.988 | 0.687 |
| GDP-Adv | -0.004 | 0.641 | -0.008 | 0.586 | -0.018*** | 0.002 | 0.253 | 1.505 | 1.552 |
| GDP-Prelim. | 0.086*** | 0.000 | 0.028* | 0.071 | 0.002 | 0.743 | 3.032* | 6.366* | 0.946 |
| Housing Starts | -0.019*** | 0.004 | 0.010 | 0.419 | -0.002 | 0.489 | -2.102** | -2.362** | 2.624* |
| New Home Sales | -0.004 | 0.724 | -0.062*** | 0.003 | -0.007** | 0.011 | 2.367** | 0.173 | -0.217 |
| Personal Con.-Prelim. | -0.121*** | 0.000 | -0.001 | 0.930 | -0.005 | 0.442 | -6.464* | -9.017* | 1.040 |
| Trade Balance | 0.015*** | 0.005 | 0.007 | 0.270 | 0.000 | 0.935 | 0.846 | 2.452** | 0.500 |
| **GE Macro News** | | | | | | | | | |
| GDP SA QoQ-Prelim. | -0.007* | 0.080 | -0.012 | 0.241 | -0.006* | 0.051 | 0.387 | -0.194 | -2.139** |
| Retail Sales MoM | 0.009 | 0.186 | -0.013* | 0.058 | 0.003 | 0.303 | 2.278** | 0.841 | -0.457 |
| **JP Macro News** | | | | | | | | | |
| Retail Trade YoY | -0.022** | 0.042 | 0.000 | 0.942 | 0.003 | 0.432 | -1.769*** | -2.176** | 0.000 |
| **UK Macro News** | | | | | | | | | |
| BOE Bank Rate | -0.044*** | 0.000 | 0.000 | 0.999 | 0.028*** | 0.000 | -1.063 | -10.407* | 0.000 |
| CPI MoM | -0.020*** | 0.001 | -0.005 | 0.741 | 0.009** | 0.020 | -6.571* | -4.081* | -0.958 |
| GDP QoQ-Adv. | 0.117*** | 0.000 | 0.009 | 0.370 | 0.031*** | 0.000 | 3.720* | 6.160* | -1.976** |
| Industrial Production | -0.030*** | 0.000 | 0.000 | 0.956 | 0.000 | 0.903 | -1.132 | -4.498* | -0.109 |
| Retail Sales Ex Auto | 0.006 | 0.341 | -0.010 | 0.430 | -0.024*** | 0.000 | 2.322** | 3.645* | 1.053 |
| Visible Trade Balance | -0.030** | 0.011 | -0.001 | 0.815 | -0.001 | 0.824 | 0.000 | -2.395** | -0.049 |

Note: The table shows public communications and macroeconomic news effects on the EUR/USD returns by name from the mean equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 8 Panel A: The effect of the speaker's name on JPY/USD return

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **US Speakers** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US&EU** | **US&NON** | **EU&NON** |
| Barr | -0.017 | 0.654 | | | 0.000 | 0.097 | | -0.732 | |
| Bernanke | -0.004 | 0.396 | 0.022*** | 0.001 | 0.001 | 0.685 | -14.540*** | -0.887 | 15.354*** |
| Ferguson | 0.229*** | 0.000 | | | 0.000 | 0.486 | | -1.326 | |
| Fischer | -0.065* | 0.093 | -0.012 | 0.736 | 0.736 | 0.074 | -0.305 | -0.995 | -0.175 |
| Geithner | 0.026*** | 0.001 | -0.054** | 0.040 | 0.040 | 0.553 | 1.099 | -1.418 | -0.237 |
| Guynn | | | | | 0.000 | 0.013 | | | |
| Hoenig | -0.023** | 0.027 | 0.001 | 0.971 | 0.971 | 0.630 | -0.641 | -0.491 | -0.304 |
| Kohn | 0.026*** | 0.004 | | | 0.000 | 0.006 | | 2.097** | |
| Lacker | -0.017* | 0.088 | -0.007 | 0.484 | 0.484 | 0.824 | -1.108 | -1.911* | -1.734* |
| Paulson | 0.009* | 0.086 | | | 0.000 | 0.294 | | -0.941 | |
| Pianalto | -0.031** | 0.023 | 0.001 | 0.949 | 0.949 | 0.450 | -1.072 | -0.383 | -1.173 |
| Poole | -0.055** | 0.033 | | | 0.000 | 0.087 | | 0.283 | |
| Quarles | | | | | 0.000 | 0.083 | | | |
| Rosengren | -0.019** | 0.044 | 0.002 | 0.821 | 0.821 | 0.931 | -1.451 | -1.250 | -0.385 |
| Solomon | -0.036** | 0.017 | | | 0.000 | 0.367 | | | |
| Volcker | -0.072*** | 0.000 | 0.020 | 0.285 | 0.285 | 0.316 | -0.468 | -0.548 | -0.863 |
| Yellen | 0.017* | 0.051 | -0.002 | 0.877 | 0.877 | 0.297 | 2.128** | -0.820 | -1.783* |

Note: The table shows public communication effects on the JPY/USD returns by name from the mean equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 8 Panel B: The effect of the speaker's name on JPY/USD return

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **EU Speakers** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US&EU** | **US&NON** | **EU&NON** |
| Constancio | -0.020** | 0.027 | 0.005 | 0.600 | 0.599 | 0.102 | -2.960*** | -0.447 | -4.074*** |
| Draghi | 0.019 | 0.118 | 0.010** | 0.050 | 0.050 | 0.695 | 0.466 | -1.325 | -1.343 |
| Gonzalez | 0.026*** | 0.001 | 0.014 | 0.290 | 0.290 | 0.415 | 2.391** | -1.465 | -2.142** |
| Liikanen | -0.014** | 0.046 | 0.007 | 0.401 | 0.401 | 0.499 | -1.333 | -0.275 | -2.190** |
| Nowotny | 0.017** | 0.043 | 0.003 | 0.675 | 0.675 | 0.329 | 2.397** | -0.328 | -1.702* |
| Ordonez | -0.018** | 0.046 | -0.007 | 0.735 | 0.735 | 0.029 | -0.317 | -0.804 | -1.190 |
| Orphanides | -0.028* | 0.087 | 0.014 | 0.384 | 0.384 | 0.662 | -1.944* | -1.053 | -1.395 |
| Papademos | 0.023** | 0.026 | 0.000 | 0.999 | 0.000 | 0.097 | 0.000 | 0.000 | -0.960 |
| Quaden | 0.025* | 0.076 | 0.000 | 0.999 | 0.000 | 0.435 | 0.000 | 0.000 | 2.378** |
| Trichet | 0.002 | 0.650 | -0.013 | 0.293 | 0.293 | 0.085 | 0.784 | -0.841 | -2.220** |
| **UK Speakers** | | | | | | | | | |
| Carney | 0.096*** | 0.009 | 0.000 | 0.999 | 0.000 | 0.612 | 0.000 | 0.000 | -0.598 |
| King | 0.019* | 0.082 | -0.003 | 0.774 | 0.774 | 0.803 | 0.444 | -1.595 | -0.418 |
| **US Macro News** | | | | | | | | | |
| Consumer Conf. Index | 0.011* | 0.095 | 0.009 | 0.252 | 0.252 | 0.692 | 0.163 | -0.677 | -0.710 |
| Construction Spending | -0.026*** | 0.001 | 0.022*** | 0.002 | 0.002 | 0.507 | -0.848 | -0.782 | 0.012 |
| Δ in Nonfarm Payrolls | -0.045*** | 0.000 | -0.057*** | 0.000 | 0.000 | 0.000 | 0.791 | -0.313 | -0.314 |
| Business Inventories | -0.005 | 0.478 | 0.003 | 0.759 | 0.759 | 0.054 | -0.448 | -0.244 | -0.157 |
| Retail Sales Ex Auto | 0.001 | 0.926 | -0.005 | 0.722 | 0.722 | 0.008 | 2.184** | -0.413 | -2.290** |
| Personal Cons.-Prelim. | -0.077*** | 0.000 | 0.006 | 0.771 | 0.771 | 0.094 | -0.731 | -0.874 | -2.846*** |
| PPI MoM | -0.017* | 0.056 | 0.005 | 0.730 | 0.730 | 0.009 | -0.409 | -1.153 | -2.055** |
| New Home Sales | 0.029* | 0.077 | 0.034 | 0.232 | 0.232 | 0.026 | -0.417 | -1.378 | -2.866*** |
| Initial Jobless Claims | 0.007** | 0.033 | -0.002 | 0.724 | 0.724 | 0.729 | 0.579 | -0.089 | -0.854 |
| Industrial Prod. MoM | -0.012** | 0.025 | 0.009 | 0.270 | 0.270 | 0.343 | -9.837*** | -4.335*** | -8.425*** |
| Housing Starts | 0.022** | 0.017 | 0.008 | 0.611 | 0.611 | 0.099 | 0.188 | -0.775 | -1.118 |
| GDP-Prelim. | 0.029* | 0.056 | 0.019 | 0.355 | 0.355 | 0.429 | 4.469*** | -2.949*** | -2.570*** |
| GD-Adv | 0.015 | 0.145 | 0.006 | 0.748 | 0.748 | 0.005 | 0.900 | -3.318*** | -3.154*** |
| Factory Orders | 0.001 | 0.825 | 0.009 | 0.440 | 0.440 | 0.08 | -0.053 | -0.179 | -0.159 |
| FOMC Rate Decision | 0.092*** | 0.000 | -0.057*** | 0.000 | 0.000 | 0.147 | 0.435 | 0.403 | -1.286 |
| **UK Macro News** | | | | | | | | | |
| GDP QoQ-Adv. | -0.081*** | 0.000 | 0.003 | 0.831 | 0.831 | 0.028 | -1.236 | -1.884* | -0.397 |
| BOE Rate | -0.012*** | 0.001 | 0.000 | 0.999 | 0.000 | 0.531 | 0.000 | 0.000 | -0.792 |
| **JP Macro News** | | | | | | | | | |
| Retail Trade YoY | 0.038** | 0.011 | 0.006 | 0.418 | 0.418 | 0.540 | 0.066 | -0.418 | -0.648 |
| **GE Macro News** | | | | | | | | | |
| GDP SA QoQ-Prelim. | 0.011** | 0.045 | 0.003 | 0.846 | 0.846 | 0.271 | 0.129 | -1.455 | -2.181** |

Note: The table shows public communication from EU, UK and macroeconomic news effects on the JPY/USD returns by name from the mean equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 9 Panel A: The effect of the speech content on EUR/USD return

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **US Content** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US&EU** | **US&NON** | **EU&NON** |
| Employment | | | | | 0.060** | 0.036 | | | |
| Budget | -0.017 | 0.105 | 0.075*** | 0.002 | -0.004 | 0.572 | -10.628*** | -0.692 | 10.208*** |
| Deficit | | | | | 0.043*** | 0.005 | | | |
| Fiscal Policy | 0.021 | 0.202 | -0.076** | 0.022 | -0.011 | 0.331 | 14.253*** | 10.295*** | -0.028 |
| Inflation | 0.021 | 0.106 | 0.065* | 0.050 | -0.002 | 0.859 | -1.017 | 1.204 | 0.736 |
| Consumer | 0.003 | 0.832 | | | 0.025*** | 0.003 | 0.000 | 0.000 | -0.989 |
| FOMC rate decision | 0.053*** | 0.000 | -0.044*** | 0.000 | 0.017*** | 0.000 | 1.867* | 1.072 | -2.121** |
| Housing market | 0.019*** | 0.002 | -0.020** | 0.026 | -0.002 | 0.690 | 1.226 | 1.496 | -0.553 |
| Manufacturing | 0.000 | 0.999 | | | -0.016* | 0.076 | | | |
| Financial Market | 0.015* | 0.076 | | | 0.004 | 0.735 | | | -0.335 |
| Risk | -0.028*** | 0.002 | -0.016 | 0.629 | 0.000 | 0.983 | -0.382 | -0.914 | -0.508 |
| **EU Content** | | | | | | | | | |
| Economy | 0.032** | 0.011 | 0.016 | 0.111 | 0.003 | 0.426 | 0.835 | 0.336 | 0.712 |
| Inflation | 0.030* | 0.086 | | | -0.001 | 0.962 | | | 2.199** |
| CPI | | | | | -0.032* | 0.090 | | | |
| Lending | 0.000 | 0.999 | 0.055* | 0.097 | -0.027 | 0.254 | 0.000 | 0.556 | 0.000 |
| Housing market | 0.066** | 0.045 | 0.000 | 0.999 | 0.029 | 0.388 | 0.000 | 0.000 | -0.706 |
| Mortgage | | | | | -0.100*** | 0.003 | | | |
| Industry | | | 0.058* | 0.077 | 0.008 | 0.581 | | -0.982 | |
| Regulation | 0.491*** | 0.000 | 0.020 | 0.396 | -0.008 | 0.468 | 1.099 | 0.434 | 0.833 |
| **UK Content** | | | | | | | | | |
| Inflation | -0.065** | 0.011 | | | 0.002 | 0.861 | | | -0.767 |
| Interest rate | -0.052*** | 0.000 | | | -0.005 | 0.640 | | | 0.503 |

Note: The table shows public communication effects on the EUR/USD returns by name from the mean equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 9 Panel B: The effect of the speech content on EUR/USD return

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **US Macro News** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US&EU** | **US&NON** | **EU&NON** |
| Business Inventories | 0.015** | 0.029 | -0.005 | 0.621 | 0.002 | 0.550 | 0.699 | 1.319 | -1.373 |
| Δ in Nonfarm Payrolls | 0.006 | 0.395 | -0.024** | 0.017 | -0.017*** | 0.000 | 0.023 | 1.377 | -1.079 |
| Construction Spending | -0.006 | 0.382 | 0.010 | 0.117 | 0.008** | 0.048 | -0.647 | -5.639*** | 3.191*** |
| Consumer Conf. Index | 0.012** | 0.031 | -0.008 | 0.226 | -0.011*** | 0.007 | 0.631 | 0.362 | 0.778 |
| FOMC Rate Decision | 0.057*** | 0.000 | 0.029** | 0.037 | -0.020*** | 0.000 | 0.448 | 1.749* | 1.490 |
| Factory Orders | 0.006 | 0.232 | -0.009 | 0.366 | -0.010*** | 0.007 | 0.399 | 2.487** | 1.813* |
| GDP-Prelim. | 0.092*** | 0.000 | 0.005 | 0.803 | 0.012 | 0.102 | 0.808 | 0.771 | -2.255** |
| Initial Jobless Claims | -0.003 | 0.275 | -0.009* | 0.066 | -0.002 | 0.386 | 2.302** | -0.353 | -3.317*** |
| New Home Sales | 0.012 | 0.434 | -0.099*** | 0.000 | -0.010*** | 0.001 | 1.658* | 3.379*** | -7.211*** |
| PPI MoM | -0.025*** | 0.002 | 0.018 | 0.148 | 0.008** | 0.025 | -1.359 | -0.123 | 2.541** |
| Personal Cons.-Prelim. | -0.116*** | 0.000 | 0.023 | 0.203 | -0.005 | 0.517 | -1.341 | -0.824 | 0.931 |
| Retail Sales Ex Auto | 0.029*** | 0.000 | -0.026** | 0.033 | -0.007* | 0.069 | 3.792*** | 0.382 | -5.069*** |
| Trade Balance | 0.005 | 0.476 | 0.015* | 0.073 | -0.009** | 0.011 | -1.557 | 1.305 | 0.731 |
| **GE Macro News** | | | | | | | | | |
| Retail Sales MoM | 0.018** | 0.025 | -0.027*** | 0.001 | 0.004 | 0.204 | 6.201*** | 1.424 | -7.186*** |
| GDP-Prelim. | 0.010* | 0.053 | -0.006 | 0.590 | -0.003 | 0.390 | 1.239 | 1.469 | -0.256 |
| Imports QoQ | -0.027*** | 0.002 | 0.011 | 0.691 | -0.007 | 0.267 | -0.995 | -1.390 | 0.448 |
| Industrial Prod.-Prelim. | -0.001 | 0.844 | -0.004 | 0.600 | -0.007** | 0.048 | 3.787*** | 3.521*** | 1.419 |
| **UK Macro News** | | | | | | | | | |
| BOE Rate | -0.002 | 0.480 | | | 0.020*** | 0.007 | | | -1.823* |
| Visible Trade Balance | -0.037*** | 0.009 | 0.004 | 0.389 | 0.000 | 0.903 | -0.502 | -0.783 | 0.608 |
| GDP QoQ-Adv. | 0.102*** | 0.000 | 0.007 | 0.563 | 0.007 | 0.235 | 0.565 | 0.770 | -0.305 |
| Retail Sales Ex Auto | 0.002 | 0.767 | -0.009 | 0.567 | -0.015** | 0.020 | 0.768 | 2.347** | 1.113 |

Note: The table shows macroeconomic news effects on the EUR/USD returns by name from the mean equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsampled. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 10 Panel A: The effect of the speech content on GBP/USD return

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **US Speaker** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Budget | -0.029*** | 0.004 | -0.030 | 0.335 | -0.011 | 0.319 | 0.023 | -1.247 | -0.586 |
| Fiscal Policy | 0.067*** | 0.000 | 0.068** | 0.030 | 0.002 | 0.829 | -0.020 | 3.660*** | 2.376** |
| Inflation | 0.026** | 0.036 | | | -0.011 | 0.266 | | 2.322** | |
| Trading | 0.041*** | 0.008 | | | -0.003 | 0.529 | | 2.702*** | |
| Interest Rate | -0.024** | 0.015 | | | -0.017 | 0.250 | | -0.411 | |
| Housing market | -0.042* | 0.058 | 0.009 | 0.762 | -0.004 | 0.711 | -1.343 | -1.588 | 0.612 |
| Production | 0.030* | 0.094 | -0.025*** | 0.007 | 0.012*** | 0.001 | 2.728*** | 0.981 | -1.018 |
| FOMC | 0.034*** | 0.000 | -0.006 | 0.835 | -0.003 | 0.487 | 1.269 | 3.994*** | -0.128 |
| Risk | -0.021** | 0.013 | 0.014 | 0.256 | 0.006 | 0.183 | -2.315** | -2.818*** | 1.511 |
| Regulation | 0.014* | 0.064 | 0.042 | 0.175 | -0.007 | 0.606 | -0.868 | 1.352 | 1.606 |
| **EU Speaker** | | | | | | | | | |
| Budget | 0.096*** | 0.002 | -0.006 | 0.800 | -0.007 | 0.643 | 2.646*** | 2.940*** | 0.210 |
| Fiscal Policy | -0.059*** | 0.008 | -0.013 | 0.549 | 0.015 | 0.495 | -1.456 | -2.361** | -0.101 |
| Saving | -0.080** | 0.011 | | | -0.011 | 0.764 | | -1.443 | |
| Employ Rate | -0.080** | 0.010 | | | 0.029 | 0.346 | | -2.483** | |
| Real Estate | 0.052* | 0.094 | -0.009 | 0.692 | 0.006 | 0.524 | 1.596 | 1.401 | -0.081 |
| Regulation | 0.387*** | 0.000 | | | | | | | |
| Housing Market | | | | | 0.060* | 0.053 | | | |
| **UK Speaker** | | | | | | | | | |
| Employment | -0.180*** | 0.000 | | | 0.017* | 0.090 | | -5.994*** | |
| Inflation | -0.057** | 0.018 | | | -0.023** | 0.020 | | -1.295 | |
| Interest Rate | 0.067*** | 0.000 | 0.005 | 0.604 | 0.005 | 0.139 | 3.988*** | 4.663*** | 1.100 |

Note: The table shows public communication effects on the GBP/USD returns by name from the mean equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 10 Panel B: The effect of the speech content on GBP/USD return

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **US Macro News** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Business Inventories | 0.028*** | 0.000 | -0.037*** | 0.000 | -0.011*** | 0.001 | 5.782*** | 5.559*** | -1.829* |
| Δ in Nonfarm Payrolls | 0.012* | 0.058 | -0.007 | 0.262 | -0.010** | 0.012 | 2.122** | 2.953*** | 0.266 |
| Construction Spending | 0.008 | 0.255 | 0.005 | 0.381 | 0.008** | 0.024 | 0.246 | -0.082 | -1.299 |
| Consumer Conf. Index | 0.021*** | 0.000 | 0.005 | 0.701 | -0.017*** | 0.000 | 1.106 | 5.438*** | 0.932 |
| FOMC Rate Decision | 0.066*** | 0.000 | 0.029* | 0.091 | 0.002 | 0.761 | 1.882* | 5.593*** | 1.961** |
| GDP-Adv. | -0.008 | 0.392 | -0.010 | 0.522 | -0.021*** | 0.002 | 0.151 | 1.203 | 0.022 |
| GDP-Prelim. | 0.095*** | 0.000 | 0.015 | 0.284 | -0.003 | 0.297 | 4.212*** | 7.203*** | 1.459 |
| Housing Starts | -0.018** | 0.022 | 0.000 | 0.98 | -0.005 | 0.509 | -0.936 | -1.248 | 0.518 |
| New Home Sales | -0.005 | 0.746 | 0.029* | 0.091 | | | -1.516 | | |
| Personal Cons.-Prelim. | -0.128*** | 0.000 | 0.007 | 0.334 | -0.001 | 0.737 | -9.043*** | -9.543*** | 1.373 |
| Trade Balance | 0.018*** | 0.002 | 0.000 | 0.987 | 0.002 | 0.587 | 2.067** | 2.282** | -0.843 |
| **Germany Macro News** | | | | | | | | | |
| Retail Sales MoM | 0.008 | 0.275 | -0.065*** | 0.006 | | | 2.934*** | | |
| GDP-Prelim. | -0.005 | 0.285 | -0.010 | 0.366 | -0.008** | 0.043 | 0.411 | 0.000 | -0.038 |
| **Japan Macro News** | | | | | | | | | |
| Retail Trade YoY | -0.025** | 0.046 | | | 0.036*** | 0.000 | | -4.227*** | |
| **UK Macro News** | | | | | | | | | |
| Retail Sales Ex Auto | 0.010 | 0.171 | -0.008 | 0.572 | -0.025*** | 0.000 | 2.734*** | 11.257*** | 0.133 |
| BOE Bank Rate | -0.052*** | 0.000 | -0.008 | 0.598 | 0.010** | 0.020 | -3.336*** | -6.560*** | -1.700* |
| CPI MoM | -0.029*** | 0.000 | 0.016 | 0.162 | 0.031*** | 0.000 | -7.702*** | -8.075*** | -0.960 |
| GDP QoQ-Adv. | 0.124*** | 0.000 | 0.001 | 0.861 | 0.001 | 0.753 | 3.581*** | 4.096*** | 0.748 |
| Industrial Production | -0.032*** | 0.000 | -0.002 | 0.671 | 0.000 | 0.991 | -1.118 | -3.680*** | -0.146 |
| Visible Trade Balance | -0.038*** | 0.005 | | | | | | | |

Note: The table shows macroeconomic news effects on the GBP/USD returns by name from the mean equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 11 Panel A: The effect of the speech content on JPY/USD return

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **US Content** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Economy | -0.006* | 0.083 | 0.001 | 0.827 | 0.002 | 0.253 | -3.676*** | -4.018*** | -1.730* |
| Fiscal Policy | -0.042** | 0.036 | 0.017 | 0.680 | -0.009 | 0.529 | -6.031*** | -3.896*** | 0.544 |
| Inflation | -0.028* | 0.086 | 0.005 | 0.899 | -0.003 | 0.769 | -0.250 | -0.936 | 0.984 |
| Trading | -0.058*** | 0.006 | | | 0.008 | 0.547 | | | -0.863 |
| Employment Rate | 0.000 | 0.999 | 0.015 | 0.714 | 0.057** | 0.049 | 0.000 | -2.494** | 0.000 |
| Lending | 0.077*** | 0.000 | | | 0.000 | 0.973 | | | -2.169** |
| FOMC Rate Decision | -0.015 | 0.162 | -0.030** | 0.015 | 0.013*** | 0.005 | 0.638 | -0.902 | -0.815 |
| Housing market | 0.014* | 0.052 | -0.007 | 0.517 | 0.000 | 0.968 | 0.751 | 0.085 | -1.116 |
| Mortgage | -0.064*** | 0.000 | 0.031 | 0.470 | 0.007 | 0.493 | -1.591 | -0.361 | 2.376** |
| Manufacturing | | | | | -0.022* | 0.050 | | | |
| Regulation | 0.017* | 0.096 | 0.005 | 0.761 | -0.010* | 0.097 | 0.520 | 0.226 | 1.464 |
| **EU Content** | | | | | | | | | |
| Fiscal Policy | 0.076*** | 0.009 | 0.006 | 0.830 | -0.027 | 0.194 | 0.860 | 1.235 | 0.462 |
| Labor market | -0.072* | 0.077 | | | -0.006 | 0.789 | | | 1.457 |
| Interest rate | 0.008 | 0.560 | -0.021* | 0.083 | -0.004 | 0.442 | 0.495 | 0.792 | -1.363 |
| Real Estate | 0.151*** | 0.000 | | | 0.030 | 0.464 | | | -1.350 |
| Risk | -0.099** | 0.023 | | | 0.005 | 0.912 | | | -1.920* |
| Regulation | 0.244*** | 0.000 | 0.004 | 0.897 | 0.028** | 0.032 | 0.245 | -0.357 | -0.074 |
| **UK Content** | | | | | | | | | |
| Economy | 0.105** | 0.010 | | | | | | | |
| Employment | | | | | -0.079* | 0.055 | | | |
| Interest rate | -0.030* | 0.075 | | | 0.002 | 0.882 | | 0.000 | |

Note: The table shows public communication effects on the JPY/USD returns by name from the mean equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 11 Panel B: The effect of the speech content on JPY/USD return

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **US Macro News** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Business Inventories | -0.011 | 0.190 | 0.003 | 0.820 | 0.009** | 0.038 | -0.943 | -2.137** | -2.137** |
| Δ in Nonfarm Payrolls | -0.055*** | 0.000 | -0.071*** | 0.000 | -0.016*** | 0.000 | 1.031 | -4.236*** | -4.236*** |
| Construction Spending | -0.034*** | 0.000 | 0.021*** | 0.009 | -0.003 | 0.505 | -4.658*** | -3.131*** | 3.131*** |
| Consumer Conf. Index | 0.014** | 0.042 | 0.011 | 0.194 | 0.001 | 0.833 | 0.286 | 1.515 | 1.515 |
| FOMC Rate Decision | 0.092*** | 0.000 | -0.037** | 0.030 | -0.012** | 0.040 | 6.211*** | 7.896*** | -7.896*** |
| Factory Orders | 0.000 | 0.945 | 0.003 | 0.837 | 0.010** | 0.042 | -0.214 | -1.254 | -1.254 |
| GDP-Adv. | 0.014 | 0.230 | -0.005 | 0.807 | -0.020** | 0.025 | 0.791 | 2.304** | 2.304** |
| Housing Starts | 0.025** | 0.015 | 0.006 | 0.727 | -0.011** | 0.012 | 0.890 | 3.220*** | 3.220*** |
| Industrial Prod. | -0.020*** | 0.001 | 0.007 | 0.402 | 0.004 | 0.481 | -2.546** | -2.868*** | 2.868*** |
| New Home Sales | 0.014 | 0.441 | 0.043 | 0.171 | -0.008** | 0.038 | -0.783 | 1.176 | 1.176 |
| PPI MoM | -0.020** | 0.042 | 0.003 | 0.836 | 0.011** | 0.012 | -1.261 | -2.882*** | -2.882*** |
| Personal Cons.-Prelim. | -0.080*** | 0.000 | 0.013 | 0.557 | -0.013 | 0.150 | -3.381*** | -3.516*** | 3.516*** |
| Retail Sales Ex Auto | 0.002 | 0.791 | -0.007 | 0.661 | -0.011** | 0.019 | 0.508 | 1.617 | 1.617 |
| **Germany Macro News** | | | | | | | | | |
| GDP SA QoQ-Prelim. | 0.014** | 0.027 | 0.002 | 0.892 | -0.006 | 0.259 | 0.746 | 2.441** | 2.441** |
| Retail Sales MoM | 0.015 | 0.140 | 0.019* | 0.063 | 0.000 | 0.964 | -0.299 | 1.353 | 1.353 |
| **Japan Macro News** | | | | | | | | | |
| Retail Trade YoY | 0.037** | 0.025 | 0.002 | 0.801 | -0.004 | 0.398 | 1.862* | 2.384** | 2.384** |
| **UK Macro News** | | | | | | | | | |
| BOE Bank Rate | -0.021*** | 0.000 | | | 0.009 | 0.324 | | -2.927*** | |
| GDP QoQ-Adv. | -0.054*** | 0.005 | 0.003 | 0.852 | -0.018** | 0.018 | -2.324** | -1.742* | 1.742* |
| Visible Trade Balance | -0.013 | 0.448 | -0.001 | 0.923 | 0.009* | 0.066 | -0.686 | -1.206 | -1.206 |

Note: The table shows macroeconomic news effects on the JPY/USD returns by name from the mean equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 12: The effect of the speech institution on EUR/USD return

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **Institution** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Treasury (US) | 0.009*** | 0.001 | -0.081*** | 0.006 | -0.001 | 0.717 | 3.052*** | 2.899*** | -2.734*** |
| ECB (EU) | -0.003* | 0.059 | -0.001 | 0.523 | 0.000 | 0.943 | -0.926 | -1.738* | -0.605 |
| Bundesbank (EU) | 0.026** | 0.030 | -0.005 | 0.530 | -0.003 | 0.357 | 2.178** | 2.336** | -0.193 |
| BOJ (JP) | -0.010** | 0.033 | 0.000 | 0.975 | 0.003 | 0.302 | -1.468 | -2.371** | -0.408 |
| BOE (UK) | -0.010*** | 0.009 | -0.001 | 0.729 | -0.003** | 0.048 | -1.756* | -1.673* | 0.538 |
| **US Macro News** | | | | | | | | | |
| Business Inventories | 0.015** | 0.013 | -0.003 | 0.715 | 0.002 | 0.452 | 1.733* | 1.830* | -0.609 |
| Δ in Nonfarm Payrolls | 0.001 | 0.870 | -0.029*** | 0.001 | -0.014*** | 0.000 | 2.832*** | 2.236** | -1.617 |
| Construction Spending | -0.002 | 0.797 | 0.008 | 0.142 | 0.008** | 0.013 | -1.184 | -1.415 | -0.006 |
| Consumer Confid. Index | 0.012** | 0.020 | -0.006 | 0.343 | -0.008** | 0.027 | 2.209** | 3.176*** | 0.342 |
| FOMC Rate Decision | 0.060*** | 0.000 | -0.009 | 0.310 | -0.009** | 0.023 | 5.659*** | 7.235*** | 0.018 |
| Factory Orders | 0.003 | 0.464 | 0.001 | 0.936 | -0.009*** | 0.007 | 0.271 | 2.193** | 1.053 |
| GDP-Prelim. | 0.084*** | 0.000 | 0.014 | 0.384 | 0.015** | 0.022 | 3.414*** | 4.916*** | -0.049 |
| Initial Jobless Claims | -0.006** | 0.025 | -0.006 | 0.141 | -0.001 | 0.468 | 0.076 | -1.497 | -1.101 |
| New Home Sales | 0.017 | 0.188 | -0.089*** | 0.000 | -0.009*** | 0.001 | 4.100*** | 1.941* | -3.575*** |
| PPI MoM | -0.016** | 0.023 | 0.018* | 0.100 | 0.008*** | 0.009 | -2.605*** | -3.142*** | 0.867 |
| Personal Cons.-Prelim. | -0.107*** | 0.000 | 0.016 | 0.309 | -0.008 | 0.241 | -6.160*** | -7.155*** | 1.393 |
| Retail Sales Ex Auto | 0.019*** | 0.000 | -0.029*** | 0.007 | -0.006* | 0.093 | 4.115*** | 4.320*** | -2.031** |
| Trade Balance | -0.002 | 0.725 | 0.017** | 0.020 | -0.008** | 0.011 | -2.058** | 0.982 | 3.176*** |
| **GE Macro News** | | | | | | | | | |
| Imports QoQ | -0.022*** | 0.004 | 0.010 | 0.680 | -0.007 | 0.199 | -1.250 | -1.509 | 0.700 |
| Industrial Prod.-Prelim. | -0.001 | 0.832 | -0.002 | 0.818 | -0.007** | 0.044 | 0.067 | 0.912 | 0.616 |
| Retail Sales MoM | 0.016** | 0.025 | -0.021*** | 0.004 | 0.003 | 0.249 | 3.602*** | 1.648* | -3.081*** |
| **UK Macro News** | | | | | | | | | |
| BOE Bank Rate | -0.003 | 0.297 | | | 0.015** | 0.028 | | -2.428** | |
| GDP QoQ-Adv. | 0.087*** | 0.000 | 0.000 | 0.973 | 0.008 | 0.159 | 4.946*** | 5.330*** | -0.604 |
| Industrial Production | -0.008 | 0.188 | -0.007 | 0.220 | -0.006** | 0.042 | -0.197 | -0.282 | -0.055 |
| Retail Sales Ex Auto | 0.001 | 0.918 | -0.012 | 0.381 | -0.014** | 0.018 | 0.829 | 1.632 | 0.137 |
| Visible Trade Balance | -0.029** | 0.021 | 0.005 | 0.275 | 0.000 | 0.896 | -2.530** | -2.191** | 0.944 |

Note: The table shows public communication and macroeconomic news effects on the EUR/USD returns by Institution from the mean equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 13: The effect of the speech institution on GBP/USD return

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **Institution** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Fed (US) | -0.004** | 0.014 | -0.001 | 0.517 | -0.001 | 0.250 | -1.340 | -1.784* | -0.102 |
| Treasury (US) | 0.007*** | 0.006 | -0.059** | 0.037 | -0.002 | 0.192 | 2.335** | 3.020*** | -2.000** |
| ECB (EU) | -0.005*** | 0.002 | 0.000 | 0.927 | -0.001* | 0.065 | -2.160** | -1.976** | 0.749 |
| BOJ (JP) | -0.009* | 0.058 | 0.001 | 0.876 | 0.001 | 0.549 | -1.395 | -1.960** | -0.111 |
| BOE (UK) | 0.009*** | 0.010 | -0.002 | 0.551 | -0.004** | 0.014 | 2.336** | 3.322*** | 0.523 |
| **US Macro News** | | | | | | | | | |
| Business Inventories | 0.026*** | 0.000 | 0.005 | 0.538 | 0.005 | 0.122 | 2.148** | 3.302*** | 0.025 |
| Δ in Nonfarm Payrolls | 0.008 | 0.137 | -0.035*** | 0.000 | -0.010*** | 0.001 | 4.299*** | 2.874*** | -2.833*** |
| Construction Spending | 0.010* | 0.092 | 0.004 | 0.475 | 0.007** | 0.028 | 0.760 | 0.427 | -0.511 |
| Consumer Conf. Index | 0.019*** | 0.000 | -0.006 | 0.338 | -0.008** | 0.021 | 3.182*** | 4.452*** | 0.386 |
| FOMC Rate Decision | 0.064*** | 0.000 | -0.016** | 0.049 | -0.009** | 0.014 | 6.892*** | 8.066*** | -0.777 |
| Factory Orders | 0.001 | 0.861 | 0.009 | 0.295 | -0.006* | 0.091 | -0.845 | 1.142 | 1.586 |
| GDP-Adv. | -0.004 | 0.576 | -0.008 | 0.573 | -0.019*** | 0.002 | 0.226 | 1.430 | 0.668 |
| GDP-Prelim. | 0.088*** | 0.000 | 0.029* | 0.068 | 0.002 | 0.765 | 2.991*** | 6.328*** | 1.582 |
| Housing Starts | -0.016** | 0.018 | 0.012 | 0.324 | -0.002 | 0.46 | -2.019** | -1.895* | 1.130 |
| New Home Sales | -0.005 | 0.666 | -0.060*** | 0.005 | -0.007*** | 0.01 | 2.204** | 0.104 | -2.483** |
| Personal Cons.-Prelim. | -0.123*** | 0.000 | -0.001 | 0.946 | -0.005 | 0.452 | -6.378*** | -8.855*** | 0.229 |
| Trade Balance | 0.015*** | 0.006 | 0.008 | 0.278 | 0.000 | 0.892 | 0.847 | 2.458** | 1.044 |
| **GE Macro News** | | | | | | | | | |
| GDP SA QoQ-Prelim. | -0.008* | 0.061 | -0.011 | 0.258 | -0.007** | 0.048 | 0.302 | -0.271 | -0.451 |
| Retail Sales MoM | 0.009 | 0.199 | -0.013* | 0.059 | 0.003 | 0.296 | 2.248** | 0.801 | -2.138** |
| **JP Macro News** | | | | | | | | | |
| Retail Trade YoY | -0.023** | 0.046 | 0.000 | 0.953 | 0.002 | 0.492 | -1.741* | -2.110** | -0.395 |
| **UK Macro News** | | | | | | | | | |
| BOE Bank Rate | -0.046*** | 0.000 | | | 0.029*** | 0.000 | | -10.493*** | |
| CPI MoM | -0.022*** | 0.000 | -0.005 | 0.707 | 0.009** | 0.020 | | -4.203*** | |
| GDP QoQ-Adv. | 0.119*** | 0.000 | 0.010 | 0.319 | 0.031*** | 0.000 | 6.426*** | 6.096*** | -1.848* |
| Industrial Production | -0.030*** | 0.000 | 0.000 | 0.983 | 0.000 | 0.903 | -3.707*** | -4.453*** | -0.079 |
| Retail Sales Ex Auto | 0.006 | 0.368 | -0.010 | 0.453 | -0.025*** | 0.000 | 1.074 | 3.574*** | 1.068 |
| Visible Trade Balance | -0.032*** | 0.009 | -0.001 | 0.796 | -0.001 | 0.861 | -2.386** | -2.480** | -0.097 |

Note: The table shows public communication and macroeconomic news effects on the GBP/USD returns by Institution from the mean equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 14: The effect of the speech institution on JPY/USD return

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **Institution** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Fed (US) | -0.007*** | 0.002 | 0.003 | 0.263 | -0.001 | 0.472 | -3.039*** | -2.577*** | 1.320 |
| Treasury (US) | 0.004 | 0.288 | 0.035 | 0.382 | -0.007*** | 0.006 | -0.772 | 2.445** | 1.051 |
| ECB (EU) | 0.001 | 0.527 | 0.005** | 0.012 | 0.001 | 0.570 | -1.276 | 0.324 | 1.984** |
| Bank of France (EU) | 0.056*** | 0.002 | 0.016 | 0.503 | 0.033* | 0.098 | 1.387 | 0.857 | -0.575 |
| **US Macro News** | | | | | | | | | |
| Business Inventories | -0.009 | 0.260 | 0.003 | 0.799 | 0.009** | 0.044 | -0.858 | -1.948* | -0.482 |
| Δ in Nonfarm Payrolls | -0.055*** | 0.000 | -0.069*** | 0.000 | -0.017*** | 0.000 | 0.953 | -4.144*** | -4.069*** |
| Construction Spending | -0.032*** | 0.000 | 0.022*** | 0.005 | -0.003 | 0.523 | -4.637*** | -2.983*** | 2.717*** |
| Consumer Conf. Index | 0.014** | 0.041 | 0.010 | 0.217 | 0.001 | 0.774 | 0.348 | 1.473 | 0.907 |
| FOMC Rate Decision | 0.093*** | 0.000 | -0.065*** | 0.000 | -0.007 | 0.178 | 9.566*** | 7.801*** | -4.572*** |
| Factory Orders | 0.000 | 0.985 | 0.005 | 0.698 | 0.009* | 0.050 | -0.335 | -1.140 | -0.341 |
| GDP-Adv. | 0.014 | 0.204 | -0.002 | 0.926 | -0.021** | 0.015 | 0.692 | 2.476** | 0.840 |
| Housing Starts | 0.025** | 0.013 | 0.007 | 0.702 | -0.010** | 0.023 | 0.894 | 3.187*** | 0.898 |
| Industrial Production | -0.018*** | 0.003 | 0.008 | 0.332 | 0.004 | 0.418 | -2.502** | -2.744*** | 0.376 |
| Initial Jobless Claims | 0.006* | 0.098 | -0.003 | 0.607 | 0.002 | 0.325 | 1.306 | 0.860 | -0.841 |
| New Home Sales | 0.017 | 0.357 | 0.041 | 0.180 | -0.008** | 0.040 | -0.681 | 1.317 | 1.582 |
| PPI MoM | -0.017* | 0.078 | 0.004 | 0.807 | 0.011** | 0.011 | -1.148 | -2.661*** | -0.470 |
| Personal Cons.-Prelim. | -0.080*** | 0.000 | 0.011 | 0.606 | -0.014 | 0.131 | -3.382*** | -3.566*** | 1.062 |
| Retail Sales Ex Auto | 0.001 | 0.901 | -0.006 | 0.699 | -0.012** | 0.014 | 0.404 | 1.580 | 0.403 |
| **GE Macro News** | | | | | | | | | |
| GDP SA QoQ-Prelim. | 0.014** | 0.023 | 0.002 | 0.876 | -0.005 | 0.265 | 0.751 | 2.478** | 0.498 |
| Retail Sales MoM | 0.015 | 0.129 | 0.018* | 0.073 | 0.001 | 0.878 | -0.224 | 1.350 | 1.611 |
| **JP Macro News** | | | | | | | | | |
| Retail Trade YoY | 0.038** | 0.017 | 0.003 | 0.689 | -0.004 | 0.431 | 1.925* | 2.509** | 0.740 |
| **UK Macro News** | | | | | | | | | |
| BOE Bank Rate | -0.019*** | 0.000 | | | 0.008 | 0.380 | | -2.681*** | |
| GDP-Adv. | -0.062*** | 0.001 | 0.003 | 0.832 | -0.017** | 0.020 | -2.697*** | -2.180** | 1.237 |
| Visible Trade Balance | -0.012 | 0.500 | 0.000 | 0.965 | 0.008* | 0.076 | -0.623 | -1.108 | 0.000 |

Note: The table shows public communication and macroeconomic news effects on the EUR/USD returns by institution from the mean equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 15: The effect of the speakers' position on EUR/USD return

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **Position** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| President(US) | -0.008*** | 0.009 | 0.000 | 0.981 | -0.001 | 0.700 | -1.900* | -2.208** | 0.190 |
| Chairman(US) | 0.001 | 0.875 | 0.010* | 0.080 | -0.003 | 0.159 | -1.349 | 0.827 | 2.143** |
| Secretary(US) | -0.001 | 0.819 | -0.007 | 0.849 | 0.007*** | 0.002 | 0.169 | -1.955* | -0.384 |
| Board of Governor(US) | 0.015*** | 0.001 | -0.004 | 0.505 | 0.002 | 0.348 | 2.535** | 2.568*** | -0.950 |
| Board of Governor(EU) | 0.012 | 0.214 | -0.001 | 0.888 | 0.008** | 0.025 | 1.133 | 0.435 | -1.231 |
| Chief Executive(EU) | 0.097** | 0.011 | | | | | | | |
| **US Macro News** | | | | | | | | | |
| Δ in Nonfarm Payrolls | 0.001 | 0.863 | -0.004 | 0.712 | -0.021*** | 0.000 | 0.402 | 2.525** | 1.362 |
| Construction Spending | -0.027*** | 0.001 | 0.010 | 0.165 | 0.004 | 0.420 | -3.393*** | -3.309*** | 0.780 |
| Consumer Conf. Index | 0.010 | 0.133 | -0.014* | 0.082 | -0.015*** | 0.002 | 2.300** | 3.024*** | 0.101 |
| FOMC Rate Decision | 0.053*** | 0.000 | -0.036*** | 0.001 | -0.023*** | 0.000 | 5.683*** | 6.314*** | -1.001 |
| Factory Orders | 0.009 | 0.149 | -0.027** | 0.021 | -0.013*** | 0.004 | 2.709*** | 2.859*** | -1.115 |
| GDP-Prelim. | 0.092*** | 0.000 | -0.035 | 0.103 | 0.001 | 0.944 | 4.754*** | 5.025*** | -1.538 |
| Initial Jobless Claims | 0.000 | 0.904 | -0.010* | 0.063 | -0.002 | 0.302 | 1.647* | 0.660 | -1.350 |
| New Home Sales | 0.010 | 0.582 | -0.108*** | 0.000 | -0.009*** | 0.008 | 3.473*** | 1.074 | -3.362*** |
| PPI MoM | -0.035*** | 0.000 | 0.004 | 0.764 | 0.005 | 0.269 | -2.268** | -3.891*** | -0.016 |
| Personal Cons.-Prelim. | -0.111*** | 0.000 | 0.038* | 0.062 | 0.007 | 0.398 | -5.809*** | -6.666*** | 1.390 |
| Retail Sales Ex Auto | 0.042*** | 0.000 | -0.003 | 0.802 | -0.009** | 0.045 | 2.984*** | 6.686*** | 0.387 |
| Trade Balance | 0.019** | 0.010 | 0.002 | 0.817 | -0.007 | 0.112 | 1.402 | 3.026*** | 0.866 |
| **Germany Macro News** | | | | | | | | | |
| GDP SA QoQ-Prelim. | 0.019*** | 0.001 | 0.006 | 0.681 | -0.002 | 0.685 | 0.909 | 2.835*** | 0.518 |
| Imports QoQ | -0.031*** | 0.002 | 0.011 | 0.726 | -0.005 | 0.536 | -1.258 | -2.099** | 0.484 |
| Industrial Prod.-Prelim. | -0.003 | 0.609 | -0.009 | 0.362 | -0.007* | 0.089 | 0.454 | 0.487 | -0.136 |
| Retail Sales MoM | 0.020** | 0.032 | -0.031*** | 0.001 | 0.004 | 0.285 | 3.792*** | 1.593 | -3.369*** |
| **UK Macro News** | | | | | | | | | |
| BOE Bank Rate | 0.002 | 0.628 | | | 0.028*** | 0.001 | | -2.798*** | |
| CPI MoM | -0.009 | 0.277 | -0.037* | 0.055 | 0.003 | 0.630 | 1.316 | -1.174 | -1.979** |
| GDP QoQ-Adv. | 0.104*** | 0.000 | 0.023 | 0.101 | -0.001 | 0.933 | 3.547*** | 5.380*** | 1.501 |
| Retail Sales Ex Auto | 0.001 | 0.866 | 0.002 | 0.895 | -0.019** | 0.014 | -0.043 | 1.741* | 1.098 |
| Visible Trade Balance | -0.041** | 0.012 | 0.001 | 0.902 | -0.002 | 0.689 | -2.417** | -2.327** | 0.342 |

Note: The table shows public communication and macroeconomic news effects on the EUR/USD returns by Position from the mean equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 16: The effect of the speakers' position on GBP/USD return

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **Position** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Chairman(US) | -0.001 | 0.839 | 0.007* | 0.097 | -0.002 | 0.250 | -1.482 | 0.387 | 1.966** |
| Secretary(US) | -0.005* | 0.058 | -0.039 | 0.155 | 0.003* | 0.099 | 1.248 | -2.495** | -1.523 |
| Board of Governor(US) | 0.008*** | 0.009 | -0.002 | 0.565 | 0.000 | 0.751 | 2.046** | 2.211** | -0.650 |
| Chief Executive(US) | -0.020*** | 0.000 | 0.000 | 0.990 | 0.000 | 0.796 | -3.746*** | -4.754*** | -0.101 |
| Board of Governor(EU) | 0.008 | 0.245 | 0.001 | 0.903 | 0.007*** | 0.004 | 0.929 | 0.156 | -1.998 |
| Board of Governor(JP) | 0.004 | 0.753 | 0.001 | 0.875 | 0.007* | 0.052 | 0.179 | -0.265 | -0.686 |
| Board of Governor(UK) | 0.020** | 0.041 | 0.002 | 0.853 | 0.002 | 0.662 | 1.308 | 1.741* | 0.013 |
| **US Macro News** | | | | | | | | | |
| Business Inventories | 0.025*** | 0.000 | 0.005 | 0.524 | 0.005 | 0.127 | 2.129** | 3.306*** | 0.051 |
| Δ in Nonfarm Payrolls | 0.008 | 0.170 | -0.035*** | 0.000 | -0.010*** | 0.001 | 4.263*** | 2.763*** | -2.872*** |
| Construction Spending | 0.010* | 0.083 | 0.004 | 0.497 | 0.007** | 0.029 | 0.819 | 0.474 | -0.535 |
| Consumer Conf. Index | 0.018*** | 0.000 | -0.005 | 0.353 | -0.008** | 0.025 | 3.087*** | 4.320*** | 0.374 |
| FOMC Rate Decision | 0.063*** | 0.000 | -0.015* | 0.054 | -0.009** | 0.019 | 6.860*** | 8.021*** | -0.783 |
| Factory Orders | 0.000 | 0.958 | 0.009 | 0.307 | -0.006* | 0.073 | -0.879 | 1.102 | 1.598 |
| GDP-Adv. | -0.004 | 0.587 | -0.008 | 0.584 | -0.018*** | 0.002 | 0.220 | 1.453 | 0.689 |
| GDP-Prelim. | 0.086*** | 0.000 | 0.028* | 0.068 | 0.002 | 0.781 | 3.005*** | 6.359*** | 1.592 |
| Housing Starts | -0.017** | 0.013 | 0.012 | 0.340 | -0.002 | 0.498 | -2.053** | -2.037** | 1.084 |
| New Home Sales | -0.004 | 0.743 | -0.063*** | 0.003 | -0.007*** | 0.009 | 2.404** | 0.210 | -2.647*** |
| Personal Cons.-Prelim. | -0.122*** | 0.000 | -0.001 | 0.944 | -0.005 | 0.463 | -6.432*** | -8.940*** | 0.220 |
| Trade Balance | 0.015*** | 0.005 | 0.007 | 0.273 | 0.000 | 0.920 | 0.862 | 2.473** | 1.039 |
| **Germany Macro News** | | | | | | | | | |
| GDP SA QoQ-Prelim. | -0.008* | 0.058 | -0.012 | 0.245 | -0.006** | 0.050 | 0.322 | -0.301 | -0.487 |
| Retail Sales MoM | 0.009 | 0.192 | -0.013* | 0.058 | 0.003 | 0.287 | 2.266** | 0.813 | -2.150** |
| **Japan Macro News** | | | | | | | | | |
| Retail Trade YoY | -0.023** | 0.042 | 0.000 | 0.946 | 0.003 | 0.449 | -1.771* | -2.167** | -0.437 |
| **UK Macro News** | | | | | | | | | |
| BOE Bank Rate | -0.045*** | 0.000 | 0.000 | 0.999 | 0.028*** | 0.000 | 0.000 | -10.354*** | 0.000 |
| CPI MoM | -0.021*** | 0.001 | -0.005 | 0.731 | 0.009** | 0.018 | -1.074 | -4.144*** | -0.982 |
| GDP QoQ-Adv. | 0.118*** | 0.000 | 0.009 | 0.353 | 0.031*** | 0.000 | 6.505*** | 6.108*** | -1.952* |
| Industrial Prod. | -0.030*** | 0.000 | 0.000 | 0.966 | 0.000 | 0.936 | -3.719*** | -4.466*** | -0.077 |
| Retail Sales Ex Auto | 0.006 | 0.363 | -0.010 | 0.429 | -0.025*** | 0.000 | 1.114 | 3.642*** | 1.069 |
| Visible Trade Balance | -0.030** | 0.011 | -0.001 | 0.815 | 0.000 | 0.883 | -2.340** | -2.432** | -0.096 |

Note: The table shows public communication and macroeconomic news effects on the GBP/USD returns by Position from the mean equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 17: The effect of the speakers' position on JPY/USD return

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **US Position** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| President | -0.007** | 0.031 | 0.001 | 0.692 | -0.002 | 0.299 | -1.827* | -1.512 | 0.810 |
| Chairman | 0.003 | 0.549 | 0.015** | 0.022 | 0.002 | 0.523 | -1.543 | 0.210 | 1.906* |
| Secretary | 0.008** | 0.033 | -0.099** | 0.019 | 0.006** | 0.018 | 2.539** | 0.408 | -2.499** |
| Board of Governor | 0.013*** | 0.008 | -0.005 | 0.399 | -0.002 | 0.515 | 2.266** | 2.656*** | -0.564 |
| Chief Executive | -0.021*** | 0.000 | -0.004 | 0.440 | 0.003 | 0.219 | -2.082** | -3.755*** | -1.228 |
| **EU Position** | | | | | | | | | |
| President | 0.002 | 0.637 | 0.007* | 0.098 | 0.002 | 0.213 | -0.855 | -0.115 | 0.969 |
| Chairman | 0.027*** | 0.007 | 0.009 | 0.548 | -0.005 | 0.495 | 1.017 | 2.617*** | 0.829 |
| Board of Governor | 0.008 | 0.444 | 0.002 | 0.751 | 0.007* | 0.062 | 0.486 | 0.109 | -0.644 |
| Governing Council | -0.012** | 0.02 | 0.004 | 0.586 | -0.003 | 0.408 | -1.738* | -1.608 | 0.803 |
| **UK Position** | | | | | | | | | |
| Chairman | | | -0.002 | 0.910 | 0.015* | 0.084 | | | -0.868 |
| Board of Governor | 0.002 | 0.869 | 0.005 | 0.746 | -0.012** | 0.039 | -0.114 | 0.914 | 1.055 |
| **Macro news** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Business Inventories | -0.012 | 0.147 | 0.002 | 0.860 | 0.010** | 0.035 | -0.982 | -2.278** | -0.587 |
| Δ in Nonfarm Payrolls | -0.055*** | 0.000 | -0.065*** | 0.000 | -0.010** | 0.022 | 0.702 | -4.647*** | -4.148*** |
| Construction Spending | -0.038*** | 0.000 | 0.018** | 0.033 | -0.003 | 0.595 | -4.521*** | -3.416*** | 2.100** |
| Consumer Conf. Index | 0.014** | 0.048 | 0.009 | 0.285 | 0.001 | 0.814 | 0.438 | 1.457 | 0.791 |
| FOMC Rate Decision | 0.087*** | 0.000 | -0.069*** | 0.000 | -0.003 | 0.576 | 9.079*** | 6.756*** | -4.932*** |
| Factory Orders | -0.006 | 0.338 | -0.004 | 0.758 | 0.008* | 0.086 | -0.175 | -1.789* | -0.906 |
| Housing Starts | 0.025** | 0.017 | 0.007 | 0.688 | -0.013*** | 0.003 | 0.821 | 3.347*** | 1.071 |
| Industrial Production | -0.024*** | 0.000 | 0.004 | 0.673 | 0.002 | 0.706 | -2.617*** | -3.176*** | 0.150 |
| New Home Sales | 0.007 | 0.719 | 0.032 | 0.316 | -0.008** | 0.035 | -0.679 | 0.781 | 1.252 |
| PPI MoM | -0.025** | 0.015 | 0.003 | 0.857 | 0.009** | 0.042 | -1.446 | -3.045*** | -0.386 |
| Personal Cons.-Prelim. | -0.078*** | 0.000 | 0.018 | 0.427 | -0.012 | 0.213 | -3.373*** | -3.359*** | 1.216 |
| Retail Sales Ex Auto | 0.001 | 0.854 | -0.005 | 0.769 | -0.009* | 0.073 | 0.343 | 1.222 | 0.280 |
| **Germany Macro News** | | | | | | | | | |
| GDP SA QoQ-Prelim. | 0.012* | 0.071 | 0.001 | 0.940 | -0.006 | 0.255 | 0.643 | 2.127** | 0.429 |
| Industrial Prod.-Prelim. | 0.018** | 0.016 | 0.000 | 0.984 | 0.000 | 0.983 | 1.403 | 2.026** | -0.026 |
| Retail Sales MoM | 0.012 | 0.227 | 0.022** | 0.040 | -0.001 | 0.886 | -0.630 | 1.173 | 1.965** |
| **UK Macro News** | | | | | | | | | |
| BoE Bank Rate | -0.024*** | 0.000 | | | 0.013 | 0.170 | | -3.534*** | |
| GDP QoQ-Adv. | -0.034* | 0.088 | 0.004 | 0.811 | -0.019** | 0.015 | -1.496 | -0.710 | 1.306 |
| Visible Trade Balance | -0.015 | 0.394 | -0.001 | 0.835 | 0.010** | 0.037 | -0.738 | -1.360 | -1.438 |

Note: The table shows public communication and macroeconomic news effects on the JPY/USD returns by Position from the mean equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 18 Panel A: The effect of the speakers' name on EUR/USD volatility

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **US Speaker** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Bernanke | 0.018*** | 0.000 | 0.021*** | 0.000 | 0.014*** | 0.000 | -0.465 | 1.386 | 1.044 |
| Bullard | 0.005 | 0.473 | -0.002 | 0.719 | 0.009*** | 0.009 | 1.070 | -1.924*** | -1.344 |
| Ferguson | -0.054* | 0.082 | | | -0.007 | 0.388 | | -0.113 | |
| Fisher | 0.009 | 0.129 | -0.001 | 0.923 | -0.004* | 0.082 | 1.379 | 1.141 | 0.622 |
| Geithner | 0.032*** | 0.000 | -0.022 | 0.262 | 0.004 | 0.259 | 2.300** | 2.331** | -0.898 |
| Hoenig | 0.022*** | 0.005 | -0.031 | 0.273 | 0.008 | 0.104 | 1.637 | 4.513* | -1.173 |
| Kashkari | 0.052*** | 0.000 | | | | | | 1.577 | |
| Kocherlakota | | | 0.017** | 0.013 | 0.001 | 0.831 | | | 2.038** |
| Kohn | 0.022*** | 0.001 | | | 0.006 | 0.195 | | 2.623* | |
| Lacker | 0.024*** | 0.002 | -0.004 | 0.552 | -0.006* | 0.051 | 2.867* | 3.608* | 0.093 |
| Lockhart | 0.020*** | 0.001 | -0.007 | 0.140 | 0.004 | 0.272 | 3.067* | 2.170** | -1.512 |
| Levey | -0.035* | 0.078 | | | -0.010 | 0.369 | | -1.489 | |
| Lowery | -0.005 | 0.671 | | | -0.017* | 0.093 | | 0.624 | |
| Moskow | 0.000 | 0.999 | | | -0.007* | 0.088 | | 0.000 | |
| Olson | 0.000 | 0.999 | | | 0.013** | 0.016 | | 0.000 | |
| Paulson | 0.004 | 0.305 | | | -0.009** | 0.027 | | 2.164** | |
| Pianalto | 0.045*** | 0.000 | 0.003 | 0.678 | -0.007* | 0.090 | 3.126* | 3.921* | 0.584 |
| Plosser | 0.012* | 0.082 | -0.002 | 0.801 | 0.002 | 0.648 | 0.639 | 0.351 | -0.449 |
| Poole | -0.013 | 0.517 | | | -0.008* | 0.083 | | -0.062 | |
| Santomero | | | | | 0.038*** | 0.000 | | | |
| Stern | 0.019*** | 0.004 | | | -0.009 | 0.233 | | 2.714* | |
| Stein | 0.006 | 0.589 | -0.004 | 0.741 | -0.016** | 0.012 | 0.559 | 2.205** | 1.282 |
| Steel | 0.000 | 0.964 | | | -0.016* | 0.059 | | 1.434 | |
| Yellen | 0.016** | 0.022 | -0.006 | 0.571 | -0.002 | 0.645 | 1.756*** | 2.286** | -0.494 |

Note: The table shows public communication effects on the EUR/USD returns by name from the volatility equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 18 Panel B: The effect of the speakers' name on EUR/USD volatility

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **EU Speaker** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Almunia | 0.013 | 0.184 | -0.007 | 0.723 | -0.011* | 0.074 | 0.757 | 1.873*** | 0.233 |
| Caruana | -0.053* | 0.068 | -0.017 | 0.398 | -0.001 | 0.828 | -0.899 | -1.315 | -0.354 |
| Constancio | 0.014** | 0.045 | 0.007 | 0.292 | 0.001 | 0.739 | 0.931 | 1.738*** | 0.609 |
| Draghi | 0.007 | 0.449 | 0.014*** | 0.001 | 0.021*** | 0.000 | -0.369 | -1.032 | -1.275 |
| Liikanen | 0.012** | 0.029 | -0.002 | 0.809 | -0.007** | 0.027 | 1.993** | 2.955* | 0.294 |
| Mersch | -0.010 | 0.344 | -0.007 | 0.466 | -0.005* | 0.093 | -0.068 | -0.077 | -0.013 |
| Nowotny | 0.018*** | 0.004 | 0.004 | 0.483 | -0.003 | 0.437 | 1.731*** | 2.745* | 0.927 |
| Noyer | 0.013* | 0.079 | 0.003 | 0.790 | -0.009* | 0.073 | 0.957 | 3.074* | 1.484 |
| Ordonez | 0.008 | 0.245 | 0.006 | 0.701 | -0.012** | 0.016 | 0.190 | 2.449** | 1.051 |
| Papademos | 0.041*** | 0.000 | 0.003 | 0.574 | -0.011** | 0.039 | 4.243* | 5.902* | 1.965** |
| Quaden | 0.033*** | 0.002 | | | -0.001 | 0.871 | | 2.838* | |
| Smaghi | 0.008 | 0.132 | -0.029* | 0.079 | -0.002 | 0.656 | 2.367** | 1.311 | -1.924*** |
| Stark | -0.004 | 0.552 | 0.027*** | 0.001 | 0.000 | 0.961 | -2.729* | -0.328 | 2.838* |
| Trichet | 0.028*** | 0.000 | -0.015 | 0.102 | 0.005** | 0.014 | 4.060* | 6.312* | -1.588 |
| Tumpel | 0.012** | 0.022 | | | 0.001 | 0.839 | | 1.682*** | |
| Weber | 0.017*** | 0.000 | | | -0.005* | 0.053 | | 4.815* | |
| Wellink | 0.018* | 0.070 | | | -0.003 | 0.735 | | 1.620 | |
| Nishimura | | | -0.012 | 0.550 | 0.019* | 0.070 | | | 0.000 |
| **UK Speaker** | | | | | | | | | |
| Bailey | -0.034* | 0.069 | -0.028* | 0.051 | -0.012* | 0.061 | -0.098 | -0.638 | -0.950 |
| Haldan | -0.016 | 0.452 | 0.007 | 0.428 | -0.008* | 0.096 | -1.061 | -0.507 | 1.362 |
| King | 0.033*** | 0.000 | 0.021*** | 0.006 | 0.005 | 0.404 | 1.214 | 2.611* | 1.332 |
| Tucker | 0.025*** | 0.008 | 0.017** | 0.035 | 0.002 | 0.714 | 0.889 | 2.177** | 1.320 |

Note: The table shows public communication effects on the EUR/USD returns by name from the volatility equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 18 Panel C: The effect of the speakers' name on EUR/USD volatility

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **US Macro News** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Business Inventories | -0.007 | 0.235 | -0.003 | 0.712 | 0.006** | 0.036 | -0.398 | -1.716*** | -0.834 |
| CPI Ex Food and Energy | | | 0.012 | 0.125 | 0.011*** | 0.000 | | | 0.587 |
| Δ in Nonfarm Payrolls | 0.033*** | 0.000 | 0.082*** | 0.000 | 0.061*** | 0.000 | -5.183* | -5.622* | 1.831*** |
| Construction Spending | 0.035*** | 0.000 | 0.028*** | 0.000 | 0.012*** | 0.000 | 0.728 | 1.287 | 0.445 |
| Consumer Confi. Index | -0.001 | 0.892 | 0.008 | 0.176 | 0.017*** | 0.000 | -1.250 | -4.059* | -2.179** |
| FOMC Rate Decision | 0.172*** | 0.000 | 0.086*** | 0.000 | 0.091*** | 0.000 | 7.375* | 9.086* | -0.408 |
| Factory Orders | 0.014*** | 0.002 | 0.027*** | 0.002 | 0.009*** | 0.008 | -1.779*** | 0.732 | 2.325** |
| GDP-Adv. | -0.004 | 0.657 | -0.014 | 0.316 | 0.027*** | 0.000 | 0.623 | -2.686* | -2.358** |
| GDP-Prelim. | -0.037*** | 0.002 | 0.003 | 0.865 | 0.011 | 0.156 | -0.335 | -2.329** | -1.501 |
| Housing Starts | 0.021*** | 0.003 | 0.010 | 0.405 | 0.008*** | 0.005 | 0.261 | 1.740*** | 0.744 |
| Initial Jobless Claims | 0.019*** | 0.000 | 0.005 | 0.186 | 0.013*** | 0.000 | 2.323** | 0.572 | -2.151** |
| PPI MoM | 0.017** | 0.015 | 0.009 | 0.419 | 0.001 | 0.819 | 0.822 | 2.993* | 1.034 |
| Personal Consum.-Prelim. | 0.078*** | 0.000 | 0.010 | 0.519 | 0.007 | 0.337 | 2.011** | 4.529* | 1.434 |
| Retail Sales Ex Auto | 0.047*** | 0.000 | 0.026** | 0.014 | 0.018*** | 0.000 | 0.736 | 1.615 | 1.604 |
| Trade Balance | 0.002 | 0.671 | 0.003 | 0.648 | 0.024*** | 0.000 | -0.149 | -3.664* | -2.833* |
| **GE Macro News** | | | | | | | | | |
| Imports QoQ | 0.014** | 0.045 | -0.004 | 0.854 | -0.004 | 0.459 | 0.329 | 1.909*** | 0.389 |
| Industrial Prod.-Prelim. | 0.009* | 0.061 | 0.011 | 0.128 | 0.005 | 0.133 | -0.209 | 0.874 | 0.429 |
| Retail Sales | 0.017** | 0.011 | -0.002 | 0.829 | 0.002 | 0.466 | 0.843 | 2.093** | -0.950 |
| **UK Macro News** | | | | | | | | | |
| GDP QoQ-Adv. | 0.076*** | 0.000 | -0.006 | 0.577 | 0.004 | 0.392 | 5.132* | 5.797* | -0.303 |
| Visible Trade Balance | 0.072*** | 0.000 | -0.006 | 0.133 | 0.004 | 0.169 | 5.127* | 4.411* | -1.975** |

Note: The table shows macroeconomic news effects on the EUR/USD returns by name from the volatility equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 19 Panel A: The effect of the speakers' name on GBP/USD volatility

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **US Speaker** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Bernanke | 0.017*** | 0.000 | 0.009* | 0.081 | 0.008*** | 0.001 | 1.604 | 1.495 | 1.957*** |
| Ferguson | -0.091*** | 0.004 | | | 0.008 | 0.356 | | -0.714 | |
| Fisher | 0.012** | 0.046 | -0.005 | 0.349 | -0.005** | 0.037 | 1.276 | 1.359 | 0.028 |
| Geithner | 0.019*** | 0.001 | -0.003 | 0.901 | 0.010*** | 0.001 | 1.294 | 0.583 | -1.839*** |
| Hoenig | 0.026*** | 0.001 | -0.029 | 0.307 | 0.004 | 0.390 | 0.439 | 0.986 | -0.415 |
| Kashkari | 0.045*** | 0.000 | | | | | | | |
| Kohn | 0.021*** | 0.002 | | | 0.003 | 0.544 | | 0.659 | |
| Lockhart | 0.013** | 0.033 | -0.007 | 0.178 | -0.004 | 0.186 | 0.051 | 0.621 | -0.207 |
| Paulson | 0.010** | 0.021 | | | -0.011*** | 0.009 | | 2.293** | |
| Pianalto | 0.207*** | 0.000 | -0.004 | 0.604 | -0.005 | 0.199 | 0.553 | 0.197 | 0.508 |
| Plosser | 0.015** | 0.030 | -0.003 | 0.675 | -0.001 | 0.739 | 0.112 | 1.113 | -1.083 |
| Rosengren | 0.031*** | 0.000 | 0.007 | 0.315 | -0.006 | 0.175 | 7.200* | 7.605* | 0.536 |
| Santomero | | | | | 0.017** | 0.020 | | | |
| Stern | 0.014** | 0.038 | | | -0.003 | 0.652 | | 3.043* | |
| Volcker | 0.054*** | 0.000 | -0.014 | 0.347 | 0.010 | 0.288 | 0.073 | 0.932 | -0.960 |
| Yellen | 0.016** | 0.019 | -0.015 | 0.190 | -0.003 | 0.426 | 0.866 | 0.574 | -0.409 |

Note: The table shows public communication effects on the GBP/USD returns by name from the volatility equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 19 Panel B: The effect of the speakers' name on GBP/USD volatility

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **EU Speaker** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Asmussen | | | -0.007 | 0.192 | -0.012** | 0.041 | | | 2.466** |
| Coeure | | | -0.010 | 0.202 | -0.008* | 0.080 | | | -0.161 |
| Draghi | 0.019** | 0.043 | -0.002 | 0.590 | 0.004 | 0.179 | 1.288 | 0.643 | -1.015 |
| Gonzalez | 0.015** | 0.015 | 0.002 | 0.862 | -0.002 | 0.663 | 0.173 | 1.038 | 0.954 |
| Hurley | -0.027** | 0.039 | | | -0.004 | 0.752 | | -0.240 | |
| Liebscher | 0.024** | 0.020 | | | -0.007 | 0.210 | | 0.558 | |
| Liikanen | 0.014*** | 0.010 | -0.005 | 0.421 | -0.008** | 0.016 | 0.893 | 1.528 | 0.677 |
| Mersch | 0.034*** | 0.002 | -0.010 | 0.343 | -0.012*** | 0.000 | 1.082 | 0.737 | 0.177 |
| Nowotny | 0.011* | 0.085 | -0.007 | 0.210 | -0.005 | 0.157 | 2.247** | 1.977** | -0.438 |
| Noyer | 0.020*** | 0.007 | 0.002 | 0.804 | -0.009* | 0.086 | 3.030* | 2.459** | 1.336 |
| Ordonez | 0.017** | 0.018 | 0.002 | 0.918 | -0.003 | 0.496 | 1.577 | 1.564 | 0.464 |
| Papademos | 0.049*** | 0.000 | | | -0.005 | 0.378 | | 5.319* | |
| Quaden | 0.044*** | 0.000 | | | 0.000 | 0.956 | | 0.299 | |
| Smaghi | 0.012** | 0.039 | -0.001 | 0.965 | 0.001 | 0.687 | 0.507 | 2.305** | -2.464** |
| Stark | 0.020*** | 0.004 | 0.002 | 0.857 | -0.001 | 0.784 | 0.342 | 1.330 | 0.657 |
| Trichet | 0.018*** | 0.000 | -0.016* | 0.095 | -0.001 | 0.759 | 1.051 | 3.283* | -1.133 |
| Tumpel | 0.016*** | 0.002 | | | 0.004 | 0.267 | | 2.968* | |
| Weber | 0.017*** | 0.000 | | | -0.005* | 0.080 | | 3.804* | |
| Weidmann | | | -0.009* | 0.098 | -0.001 | 0.732 | | | -0.020 |
| Wellink | 0.034*** | 0.001 | | | -0.005 | 0.555 | | 1.096 | |
| | **US Crisis** | | **EU Crisis** | | **Non-Crisis** | | **Wald Test** | | |
| **UK Speaker** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Bailey | 0.050*** | 0.007 | -0.008 | 0.570 | -0.006 | 0.370 | 0.038 | 0.429 | -0.386 |
| Bean | 0.023* | 0.089 | 0.006 | 0.613 | 0.007 | 0.314 | 0.233 | 0.594 | -0.205 |
| Carney | 0.020 | 0.484 | | | 0.022*** | 0.000 | | -0.861 | |
| Haldan | -0.044** | 0.044 | 0.001 | 0.940 | -0.009* | 0.066 | -0.133 | -0.264 | 0.732 |
| King | -0.008 | 0.349 | 0.003 | 0.696 | 0.011** | 0.046 | -2.443** | -3.373* | -0.381 |

Note: The table shows public communication effects on the GBP/USD returns by name from the volatility equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 19 Panel C: The effect of the speakers' name on GBP/USD volatility

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **US Macro News** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Business Inventories | 0.018*** | 0.002 | 0.009 | 0.254 | 0.003 | 0.280 | 5.444* | 8.855* | 6.160* |
| Change in Nonfarm Payrolls | 0.035*** | 0.000 | 0.051*** | 0.000 | 0.049*** | 0.000 | -1.858*** | -1.888*** | 3.645* |
| Construction Spending | 0.043*** | 0.000 | 0.011* | 0.054 | 0.008** | 0.019 | 1.180 | 1.626 | 2.395** |
| Consumer Conf. Index | 0.009* | 0.068 | 0.011* | 0.076 | 0.013*** | 0.000 | -1.481 | -2.335** | -0.032 |
| FOMC Rate Decision | 0.124*** | 0.000 | 0.051*** | 0.000 | 0.072*** | 0.000 | 3.048* | 4.732* | -0.074 |
| Factory Orders | 0.022*** | 0.000 | 0.021** | 0.017 | 0.006* | 0.084 | 4.436* | 2.986* | 2.901* |
| GDP-Adv. | 0.001 | 0.943 | -0.015 | 0.303 | 0.014** | 0.020 | 0.807 | -0.464 | -0.530 |
| Housing Starts | 0.021*** | 0.003 | 0.007 | 0.584 | 0.008*** | 0.005 | 6.819* | 7.977* | -0.780 |
| Industrial Production | 0.007* | 0.069 | -0.004 | 0.464 | -0.008** | 0.044 | 0.958 | 0.988 | 1.616 |
| Initial Jobless Claims | 0.013*** | 0.000 | 0.000 | 0.965 | 0.006*** | 0.000 | 0.253 | 1.505 | -0.687 |
| New Home Sales | 0.028** | 0.027 | -0.007 | 0.761 | 0.006** | 0.019 | 3.032* | 6.366* | -1.552 |
| PPI MoM | 0.032*** | 0.000 | -0.002 | 0.827 | 0.001 | 0.768 | 2.102** | 2.362** | -0.946 |
| Personal Consum.-Prelim. | 0.073*** | 0.000 | 0.003 | 0.861 | 0.007 | 0.358 | 1.190 | 0.404 | -1.537 |
| Retail Sales Ex Auto | 0.022*** | 0.000 | 0.026** | 0.013 | 0.020*** | 0.000 | -0.830 | 0.124 | 0.991 |
| Trade Balance | 0.016*** | 0.004 | 0.015** | 0.036 | 0.018*** | 0.000 | 2.367** | -0.173 | -2.624* |
| **GE Macro News** | | | | | | | | | |
| GDP SA QoQ-Prelim. | 0.012*** | 0.007 | -0.003 | 0.754 | -0.005 | 0.143 | 0.920 | 0.720 | 0.566 |
| Industrial Prod.-Prelim. | 0.010** | 0.043 | 0.002 | 0.828 | 0.003 | 0.433 | 1.077 | 0.309 | -1.280 |
| PPI MoM | 0.012*** | 0.002 | 0.000 | 0.992 | 0.003 | 0.435 | 0.846 | 2.452** | -1.040 |
| Retail Sales MoM | 0.014** | 0.044 | 0.003 | 0.681 | 0.001 | 0.721 | 0.387 | 0.194 | 0.500 |
| **UK Macro News** | | | | | | | | | |
| BoE Bank Rate | 0.006** | 0.036 | | | 0.007 | 0.307 | | | -1.061 |
| CPI MoM | 0.025*** | 0.001 | 0.022 | 0.112 | 0.010** | 0.016 | 0.016 | 0.843 | 0.312 |
| GDP QoQ-Adv. | 0.028** | 0.040 | 0.028*** | 0.008 | 0.019*** | 0.000 | 0.000 | 0.574 | 1.172 |
| Industrial Production | 0.012* | 0.064 | 0.002 | 0.647 | 0.010*** | 0.001 | <0.001 | 2.176** | -0.958 |
| Visible Trade Balance | 0.021* | 0.093 | -0.005 | 0.206 | -0.001 | 0.680 | 0.680 | 4.081* | 0.000 |

Note: The table shows macroeconomic news effects on the GBP/USD returns by name from the volatility equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 20 Panel A: The effect of the speakers' name on JPY/USD volatility

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **US Speaker** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Bernanke | 0.008* | 0.082 | 0.009* | 0.095 | 0.009*** | 0.001 | -2.484** | -0.766 | 2.606* |
| Bullard | 0.042*** | 0.000 | -0.002 | 0.801 | 0.000 | 0.930 | 0.133 | 0.028 | -0.115 |
| Ferguson | -0.086** | 0.015 | | | -0.015 | 0.106 | | -1.386 | |
| Geithner | 0.035*** | 0.000 | -0.006 | 0.802 | 0.000 | 0.939 | 0.118 | 0.389 | -0.136 |
| George | 0.010 | 0.631 | 0.015 | 0.235 | -0.012* | 0.081 | -5.282* | 5.556* | 0.849 |
| Gramlich | 0.000 | 0.999 | | | -0.014* | 0.075 | | | |
| Guynn | 0.000 | 0.999 | | | 0.014* | 0.071 | | | |
| Hoenig | 0.026*** | 0.003 | -0.027 | 0.387 | -0.002 | 0.700 | 0.988 | 1.607 | -0.288 |
| Kashkari | 0.052*** | 0.000 | | | | | | | |
| Lacker | 0.010 | 0.375 | 0.002 | 0.792 | -0.006* | 0.093 | 0.085 | 1.210 | 0.797 |
| Lockhart | 0.020*** | 0.004 | -0.004 | 0.440 | 0.001 | 0.702 | 1.077 | 0.312 | -0.913 |
| Levey | -0.030 | 0.190 | | | 0.041*** | 0.002 | | -0.711 | |
| Mishkin | 0.017* | 0.077 | | | -0.002 | 0.879 | | 1.669*** | |
| Paulson | 0.037*** | 0.000 | | | -0.002 | 0.611 | | 1.173 | |
| Pianalto | 0.037*** | 0.002 | -0.009 | 0.255 | -0.006 | 0.191 | 0.080 | 0.531 | -0.161 |
| Poole | 0.044** | 0.048 | | | 0.001 | 0.908 | | 0.477 | |
| Rosengren | 0.017** | 0.037 | -0.003 | 0.749 | -0.006 | 0.254 | 2.526** | 1.411 | 1.982** |
| Santomero | | | | | 0.018** | 0.028 | | | |
| Stein | 0.049*** | 0.000 | -0.013 | 0.373 | -0.002 | 0.812 | 2.033** | 2.057** | -0.102 |
| Solomon | 0.033** | 0.011 | | | 0.013 | 0.420 | 0.000 | 2.037** | 0.000 |
| Volcker | 0.038** | 0.015 | -0.002 | 0.910 | 0.018* | 0.086 | 1.033 | 0.202 | -0.906 |
| Warsh | 0.010 | 0.533 | | | -0.014* | 0.070 | | 0.807 | |

Note: The table shows public communication effects on the JPY/USD returns by name from the volatility equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 20 Panel B: The effect of the speakers' name on JPY/USD volatility

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **US Speakers** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Gonzalez | 0.022*** | 0.002 | -0.008 | 0.451 | 0.003 | 0.478 | 1.202 | 1.026 | -0.465 |
| Liebscher | 0.021* | 0.069 | | | 0.007 | 0.230 | | 2.190** | |
| Nowotny | 0.017** | 0.021 | 0.003 | 0.662 | -0.001 | 0.782 | 0.586 | 0.096 | 1.395 |
| Noyer | 0.017** | 0.035 | -0.002 | 0.834 | 0.000 | 0.995 | 0.317 | 1.190 | -0.804 |
| Ordonez | 0.051*** | 0.000 | -0.017 | 0.360 | -0.002 | 0.770 | 1.944*** | 1.395 | -1.053 |
| Orphanides | 0.029** | 0.041 | -0.014 | 0.340 | -0.001 | 0.932 | 0.695 | 0.960 | -0.053 |
| Trichet | 0.029*** | 0.000 | -0.014 | 0.195 | -0.004* | 0.068 | 0.425 | 2.228** | -1.076 |
| Tumpel | 0.014** | 0.015 | | | 0.003 | 0.400 | | 1.194 | |
| **JP Speaker** | | | | | | | | | |
| Iwata | | | | | 0.025* | 0.055 | | | |
| **US Macro News** | | | | | | | | | |
| CPI Ex Food and Energy | | | 0.012 | 0.196 | 0.010*** | 0.007 | | | 0.313 |
| Δ in Nonfarm Payrolls | 0.058*** | 0.000 | 0.035*** | 0.000 | 0.082*** | 0.000 | 0.163 | -0.710 | -0.782 |
| Construction Spending | 0.049*** | 0.000 | 0.011* | 0.071 | 0.009** | 0.018 | 0.435 | 1.286 | 0.677 |
| Consumer Conf. Index | 0.015*** | 0.006 | -0.005 | 0.452 | 0.012*** | 0.003 | 0.053 | 0.159 | -0.403 |
| FOMC Rate Decision | 0.146*** | 0.000 | 0.083*** | 0.000 | 0.098*** | 0.000 | 0.900 | 3.154* | -0.179 |
| Factory Orders | 0.011** | 0.034 | -0.005 | 0.579 | 0.011*** | 0.004 | 0.188 | 1.118 | -3.318* |
| GDP-Prelim. | 0.020 | 0.159 | 0.035** | 0.047 | 0.009 | 0.300 | -9.837* | 8.425* | 0.775 |
| Housing Starts | 0.036*** | 0.000 | -0.005 | 0.734 | 0.011*** | 0.001 | 0.417 | 2.866* | -4.335* |
| Initial Jobless Claims | 0.013*** | 0.000 | 0.005 | 0.236 | 0.012*** | 0.000 | 0.409 | 2.055** | -1.378 |
| New Home Sales | 0.106*** | 0.000 | 0.027 | 0.264 | 0.008*** | 0.007 | 0.731 | 2.846* | 1.153 |
| PPI MoM | 0.036*** | 0.000 | -0.004 | 0.754 | 0.007* | 0.062 | 2.184** | 2.290** | -0.874 |
| Personal Cons.-Prelim. | 0.043*** | 0.001 | -0.027 | 0.113 | 0.002 | 0.796 | 1.419 | 1.606 | -0.413 |
| Retail Sales Ex Auto | 0.024*** | 0.000 | -0.013 | 0.284 | 0.020*** | 0.000 | 0.129 | 2.181** | -0.457 |
| Trade Balance | 0.014** | 0.019 | -0.012 | 0.118 | 0.011*** | 0.003 | 0.000 | 0.000 | -1.455 |
| **GE Macro News** | | | | | | | | | |
| Imports QoQ | -0.010 | 0.340 | -0.010 | 0.610 | 0.011* | 0.080 | -3.348* | -3.695* | -0.918 |
| Industrial Prod.-Prelim. | 0.016*** | 0.000 | -0.010 | 0.420 | 0.000 | 0.270 | 0.363 | 1.656*** | -0.489 |
| Retail Sales | 0.016** | 0.040 | 0.000 | 0.710 | 0.000 | 0.570 | 0.612 | 2.257** | 0.529 |
| **JP Macro News** | | | | | | | | | |
| Retail Trade YoY | 0.025** | 0.050 | 0.000 | 0.830 | 0.000 | 0.400 | 0.024 | 0.792 | -0.398 |
| **UK Macro News** | | | | | | | | | |
| BoE Bank Rate | 0.007** | 0.030 | | | 0.000 | 0.950 | | 1.240 | |
| GDP QoQ-Adv. | 0.060*** | 0.000 | -0.010 | 0.570 | 0.000 | 0.900 | 0.060 | 1.072 | -0.502 |

Note: The table shows public communication and macroeconomic news effects on the JPY/USD returns by name from the volatility equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 21: The effect of the speech content on EUR/USD volatility

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **US Content** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Economy | 0.000*** | 0.000 | 0.243 | 0.243 | 0.000 | 0.841 | -2.887*** | 4.804*** | 0.971 |
| Budget | 0.017** | 0.017 | 0.143 | 0.143 | -0.005 | 0.383 | -0.359 | 1.479 | 1.148 |
| Inflation | 0.086* | 0.086 | 0.750 | 0.750 | -0.009 | 0.249 | -0.496 | 0.641 | 0.161 |
| Monetary | 0.004*** | 0.004 | 0.640 | 0.640 | 0.001 | 0.669 | -0.338 | 0.712 | 0.013 |
| Interest rate | 0.001*** | 0.001 | 0.000 | 0.999 | -0.014*** | 0.002 | 2.660*** | 2.645*** | 0.604 |
| Housing market | 0.014** | 0.014 | 0.190 | 0.190 | 0.003 | 0.598 | 0.000 | 1.651* | 0.000 |
| Fiscal Policy | 0.534 | 0.534 | 0.392* | 0.392 | 0.012** | 0.043 | 1.914* | 0.967 | 1.434 |
| FOMC rate decision | 0.001*** | 0.001 | 0.000*** | 0.000 | 0.019*** | 0.000 | 0.710 | -0.616 | -1.415 |
| **EU Content** | | | | | | | | | |
| Regulation | 0.873 | 0.873 | 0.639* | 0.639 | -0.005** | 0.032 | 0.760 | 1.060 | 2.459** |
| Monetary | 0.008*** | 0.008 | 0.376 | 0.376 | 0.061*** | 0.008 | -0.402 | -0.501 | 1.311 |
| Economy | 0.261 | 0.261 | 0.009*** | 0.009 | 0.012 | 0.918 | 2.376** | 3.125*** | -0.464 |
| Interest rate | 0.009*** | 0.009 | 0.295 | 0.295 | 0.083 | 0.109 | -1.161 | -3.003*** | 1.568 |
| **US Macro News** | | | | | | | | | |
| Δ in Nonfarm Payrolls | 0.000*** | 0.000 | 0.000*** | 0.000 | 0.009*** | 0.000 | -4.358*** | -4.631*** | -2.500** |
| Construction Spending | 0.000*** | 0.000 | 0.000*** | 0.000 | 0.018*** | 0.000 | 0.530 | -2.975*** | -3.134*** |
| FOMC Rate Decision | 0.000*** | 0.000 | 0.000*** | 0.000 | 0.008*** | 0.000 | 8.489*** | -9.145*** | -2.305** |
| Factory Orders | 0.000*** | 0.000 | 0.001*** | 0.001 | 0.014*** | 0.009 | -0.943 | -2.136** | -1.038 |
| GDP-Prelim. | 0.054* | 0.054 | 0.977 | 0.977 | 0.001** | 0.021 | -1.134 | 2.870*** | 0.800 |
| Housing Starts | 0.003*** | 0.003 | 0.132 | 0.132 | 0.005*** | 0.004 | -0.147 | -1.615 | 1.217 |
| Initial Jobless Claims | 0.000*** | 0.000 | 0.029** | 0.029 | 0.017*** | 0.000 | -3.805*** | -4.353*** | 0.235 |
| PPI MoM | 0.013** | 0.013 | 0.719 | 0.719 | -0.003 | 0.683 | -1.010 | 2.102** | 0.379 |
| Personal Cons.-Prelim. | 0.000*** | 0.000 | 0.443 | 0.443 | -0.004 | 0.499 | -3.093*** | 4.722*** | 1.354 |
| Business Inventories | 0.297 | 0.297 | 0.767* | 0.767 | 0.005*** | 0.040 | -0.361 | 1.893* | 1.010 |
| CPI Ex Food and Energy | 0.000 | 0.000 | 0.178* | 0.178 | 0.002*** | 0.000 | 0.000 | 0.000 | 0.069 |
| Consumer Conf. Index | 0.735 | 0.735 | 0.413* | 0.413 | 0.005*** | 0.000 | 0.419 | 1.616 | 2.144** |
| GDP-Adv. | 0.626 | 0.626 | 0.526* | 0.526 | 0.006*** | 0.000 | 0.323 | 2.382** | 1.728* |
| Trade Balance | 0.654 | 0.654 | 0.955* | 0.955 | 0.004*** | 0.000 | -0.319 | 3.308*** | 1.01 |
| Retail Sales Ex Auto | 0.000*** | 0.000 | 0.002*** | 0.002 | 0.000*** | 0.000 | -1.617 | 5.859*** | 1.354 |
| **Germany Macro News** | | | | | | | | | |
| GDP SA-Prelim. | 0.039** | 0.039 | 0.773 | 0.773 | -0.002 | 0.338 | -0.546 | 2.220** | 0.576 |
| Imports QoQ | 0.052* | 0.052 | 0.875 | 0.875 | -0.019 | 0.441 | -0.722 | 2.007** | 0.027 |
| Industrial Prod.-Prelim. | 0.032** | 0.032 | 0.148 | 0.148 | -0.019 | 0.135 | -0.044 | 1.001 | 0.709 |
| Retail Sales MoM | 0.011** | 0.011 | 0.808 | 0.808 | 0.006 | 0.445 | -1.943* | 2.066** | 0.506 |
| **Japan Macro News** | | | | | | | | | |
| GDP Nominal-Prelim. | 0.432 | 0.432 | 0.987* | 0.987 | 0.011** | 0.024 | -0.449 | 2.099** | 1.159 |
| **UK Macro News** | | | | | | | | | |
| CPI MoM | 0.055* | 0.055 | 0.016** | 0.016 | 0.016 | 0.298 | 1.218 | 1.142 | 1.993** |
| GDP QoQ-Adv. | 0.000*** | 0.000 | 0.889 | 0.889 | 0.028 | 0.231 | -4.904*** | -5.236*** | 0.664 |
| Visible Trade Balance | 0.000*** | 0.000 | 0.091* | 0.091 | 0.025 | 0.186 | -5.991*** | -5.230*** | 2.144** |
| Retail Sales Ex Auto | 0.590 | 0.590 | 0.040** | 0.040 | 0.036 | 0.750 | 1.483 | 0.231 | 1.728* |

Note: The table shows macroeconomic news effects on the EUR/USD returns by content from the volatility equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 22 Panel A: The effect of the speech content on GBP/USD volatility

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **US Content** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Economy | 0.015*** | 0.000 | -0.004 | 0.164 | 0.000 | 0.864 | 1.545 | 0.487 | -1.160 |
| Budget | -0.017* | 0.060 | -0.014 | 0.511 | 0.005 | 0.416 | -2.923*** | -0.173 | -0.618 |
| Fiscal Policy | 0.028** | 0.041 | -0.030 | 0.295 | -0.009 | 0.359 | 0.774 | 1.468 | -1.133 |
| FOMC rate decision | 0.038*** | 0.000 | 0.011 | 0.206 | 0.012*** | 0.000 | 0.703 | 0.603 | -0.248 |
| Interest rate | -0.018** | 0.045 | | | -0.006 | 0.213 | | | 2.675*** |
| Housing market | 0.018*** | 0.001 | 0.002 | 0.841 | 0.004 | 0.248 | 0.146 | 1.406 | -2.891*** |
| Investment | 0.029** | 0.048 | | | -0.009 | 0.393 | 0.000 | 0.000 | 1.181 |
| Regulation | 0.016** | 0.026 | -0.001 | 0.898 | 0.010** | 0.018 | 0.526 | 0.367 | -0.556 |
| **EU Content** | | | | | | | | | |
| Fiscal Policy | -0.036* | 0.074 | -0.027 | 0.183 | -0.010 | 0.469 | -0.196 | -0.386 | -0.132 |
| Monetary | -0.005 | 0.773 | -0.019 | 0.347 | -0.008** | 0.011 | 0.224 | 1.069 | -0.811 |
| Regulation | 0.063** | 0.027 | -0.011 | 0.573 | -0.003 | 0.733 | 0.408 | 0.190 | -0.590 |
| **UK Content** | | | | | | | | | |
| Economy | -0.006 | 0.699 | 0.043** | 0.033 | 0.022*** | 0.003 | -0.265 | -0.186 | 0.139 |
| Employment | 0.056** | 0.049 | | | | | | | |
| Inflation | -0.017 | 0.439 | | | 0.024*** | 0.008 | | | -0.416 |
| Interest rate | 0.123*** | 0.000 | | | 0.021** | 0.019 | | | -1.473 |

Note: The table shows public communication effects on the GBP/USD returns by content from the volatility equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 22 Panel B: The effect of the speech content on GBP/USD volatility

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **US Macro News** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Business Inventories | 0.022*** | 0.000 | 0.007 | 0.390 | 0.003 | 0.281 | 0.973 | 5.224*** | 3.054*** |
| Δ in Nonfarm Payrolls | 0.038*** | 0.000 | 0.050*** | 0.000 | 0.048*** | 0.000 | -1.693* | -0.069 | 2.661*** |
| Construction Spending | 0.046*** | 0.000 | 0.011** | 0.047 | 0.009*** | 0.009 | 4.359*** | 1.618 | 4.633*** |
| Consumer Conf. Index | 0.012** | 0.018 | 0.013** | 0.035 | 0.012*** | 0.001 | -0.533 | 2.500** | 2.977*** |
| FOMC Rate Decision | 0.123*** | 0.000 | 0.040*** | 0.001 | 0.069*** | 0.000 | 0.130 | 0.127 | -0.019 |
| Factory Orders | 0.025*** | 0.000 | 0.018** | 0.038 | 0.006* | 0.067 | 8.490*** | 3.134*** | 9.145*** |
| GDP-Adv. | -0.005 | 0.523 | -0.015 | 0.314 | 0.015** | 0.016 | 0.948 | -2.301** | -2.123** |
| Housing Starts | 0.017** | 0.015 | 0.014 | 0.275 | 0.009*** | 0.003 | 1.135 | 1.038 | 2.871*** |
| Industrial Production | 0.008** | 0.043 | -0.007 | 0.227 | -0.008** | 0.037 | 0.146 | 0.799 | 1.612 |
| Initial Jobless Claims | 0.017*** | 0.000 | -0.001 | 0.720 | 0.006*** | 0.000 | 0.333 | 0.125 | -0.586 |
| New Home Sales | 0.021 | 0.100 | -0.022 | 0.320 | 0.006** | 0.040 | 3.805*** | 1.217 | -4.354*** |
| PPI MoM | 0.030*** | 0.000 | 0.000 | 0.971 | 0.001 | 0.722 | 0.479 | 1.275 | -1.195 |
| Personal Cons.-Prelim. | 0.068*** | 0.000 | 0.000 | 0.983 | 0.008 | 0.332 | 1.023 | 0.236 | -2.125** |
| Retail Sales Ex Auto | 0.025*** | 0.000 | 0.022** | 0.040 | 0.021*** | 0.000 | 3.094*** | 0.379 | 4.722*** |
| Trade Balance | 0.017*** | 0.003 | 0.012* | 0.085 | 0.018*** | 0.000 | 1.620 | -1.355 | -5.867*** |
| **Germany Macro News** | | | | | | | | | |
| GDP SA QoQ-Prelim. | 0.012*** | 0.006 | -0.006 | 0.549 | -0.006* | 0.092 | 0.319 | 3.303*** | -3.581*** |
| Industrial Prod.-Prelim. | 0.012** | 0.019 | 0.001 | 0.875 | 0.002 | 0.539 | 0.722 | 0.027 | -2.007** |
| PPI MoM | 0.013*** | 0.001 | 0.001 | 0.930 | 0.002 | 0.523 | 0.044 | 0.709 | -1.001 |
| Retail Sales MoM | 0.015** | 0.026 | 0.002 | 0.757 | 0.001 | 0.694 | 0.619 | 0.094 | 1.513 |
| **UK Macro News** | | | | | | | | | |
| CPI MoM | 0.039*** | 0.000 | 0.024* | 0.094 | 0.011** | 0.015 | 0.205 | 0.101 | 0.319 |
| GDP-Adv. | 0.035*** | 0.009 | 0.023** | 0.025 | 0.023*** | 0.000 | 1.218 | 1.993** | 1.142 |
| Industrial Prod. | 0.009 | 0.149 | 0.000 | 0.938 | 0.009*** | 0.004 | 4.903*** | -0.663 | -5.235*** |
| Retail Sales Ex Auto | -0.021*** | 0.008 | -0.019 | 0.147 | 0.010 | 0.112 | -1.076 | -0.859 | -0.512 |
| Visible Trade Balance | 0.026** | 0.034 | -0.006 | 0.193 | -0.001 | 0.751 | 1.483 | 1.728* | -0.231 |

Note: The table shows public communication effects on the GBP/USD returns by content from the volatility equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 23: The effect of the speech content on JPY/USD volatility

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **US Content** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/EU** | **US/EU** |
| Economy | 0.015*** | 0.000 | -0.004 | 0.180 | 0.004*** | 0.006 | 3.899*** | 0.502 | -2.143** |
| Budget | -0.026** | 0.013 | -0.027 | 0.246 | -0.004 | 0.597 | 4.468*** | -1.737* | -1.058 |
| Inflation | -0.024* | 0.056 | -0.027 | 0.406 | -0.016* | 0.088 | 1.477 | -0.362 | -2.121** |
| Lending | -0.008 | 0.623 | | | -0.022** | 0.022 | | | 0.529 |
| FOMC rate decision | 0.064*** | 0.000 | 0.033*** | 0.001 | 0.021*** | 0.000 | 0.492 | 0.037 | 1.209 |
| Monetary | 0.031*** | 0.002 | -0.002 | 0.798 | -0.006* | 0.075 | 0.478 | 1.433 | 1.788* |
| Interest rate | -0.028*** | 0.006 | | | 0.001 | 0.844 | | | -3.527*** |
| Real Estate | 0.000 | 0.999 | -0.034 | 0.289 | 0.024** | 0.028 | 0.000 | -0.323 | 0.000 |
| Housing market | 0.028*** | 0.000 | -0.005 | 0.579 | 0.011*** | 0.004 | 0.179 | 1.703* | -3.499*** |
| Mortgage | 0.029*** | 0.003 | -0.018 | 0.580 | 0.003 | 0.718 | 3.132*** | 0.316 | -1.719* |
| Industry | -0.035** | 0.031 | | | -0.010 | 0.345 | | | 0.221 |
| **EU Content** | | | | | | | | | |
| Economy | 0.040*** | 0.001 | -0.012 | 0.205 | -0.006* | 0.063 | 1.117 | 1.111 | -0.183 |
| Monetary | 0.060*** | 0.001 | -0.016 | 0.493 | -0.004 | 0.283 | 0.289 | 0.784 | -0.450 |
| Risk | -0.072** | 0.034 | | | -0.015 | 0.648 | | | 0.697 |
| **US Macro News** | | | | | | | | | |
| CPI Ex Food and Energy | | | 0.008 | 0.373 | 0.009*** | 0.009 | | -1.280 | |
| Δ in Nonfarm Payrolls | 0.058*** | 0.000 | 0.036*** | 0.000 | 0.083*** | 0.000 | 0.836 | -0.131 | -1.443 |
| Construction Spending | 0.052*** | 0.000 | 0.010 | 0.106 | 0.009** | 0.018 | 1.896* | 4.586*** | 3.362*** |
| Consumer Conf. Index | 0.019*** | 0.001 | -0.006 | 0.350 | 0.013*** | 0.001 | 4.513*** | 0.173 | -5.536*** |
| FOMC Rate Decision | 0.138*** | 0.000 | 0.052*** | 0.000 | 0.090*** | 0.000 | 2.893*** | 2.495** | -0.810 |
| Factory Orders | 0.012** | 0.021 | -0.007 | 0.462 | 0.012*** | 0.002 | 5.319*** | -2.698*** | -4.724*** |
| GDP-Prelim. | -0.010 | 0.445 | 0.031* | 0.083 | 0.010 | 0.268 | -0.546 | -1.051 | 0.751 |
| Housing Starts | 0.039*** | 0.000 | -0.007 | 0.628 | 0.010*** | 0.002 | 1.845* | 1.074 | -1.243 |
| Initial Jobless Claims | 0.017*** | 0.000 | 0.006 | 0.171 | 0.011*** | 0.000 | 1.451 | 0.417 | -1.340 |
| New Home Sales | 0.096*** | 0.000 | 0.048* | 0.050 | 0.008*** | 0.008 | 2.058** | 0.990 | 1.863* |
| PPI MoM | 0.038*** | 0.000 | -0.006 | 0.610 | 0.005 | 0.144 | 1.714* | 1.617 | -5.959*** |
| Personal Cons.-Prelim. | 0.051*** | 0.000 | -0.023 | 0.177 | 0.001 | 0.945 | 2.976*** | 0.888 | -3.784*** |
| Retail Sales Ex Auto | 0.021*** | 0.000 | -0.014 | 0.233 | 0.021*** | 0.000 | 3.439*** | -1.237 | -3.213*** |
| Trade Balance | 0.015** | 0.017 | -0.012 | 0.134 | 0.011*** | 0.003 | 2.686*** | 2.855*** | -0.136 |
| **Germany Macro News** | | | | | | | | | |
| Industrial Prod.-Prelim. | 0.017** | 0.027 | 0.003 | 0.722 | -0.002 | 0.552 | 0.490 | 0.115 | 0.796 |
| Retail Sales MoM | 0.018*** | 0.002 | -0.008 | 0.336 | -0.003 | 0.399 | 0.252 | 0.832 | -1.519 |
| **Japan Macro News** | | | | | | | | | |
| Retail Trade YoY | 0.024* | 0.066 | 0.001 | 0.922 | -0.003 | 0.445 | 0.484 | 0.291 | 0.347 |
| **UK Macro News** | | | | | | | | | |
| GDP QoQ-Adv. | 0.065*** | 0.000 | -0.010 | 0.408 | -0.003 | 0.663 | 0.162 | 0.021 | -0.333 |

Note: The table shows public communication effects on the JPY/USD returns by content from the volatility equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 24: The effect of the speech institution on EUR/USD volatility

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **Institution** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Fed (US) | 0.013*** | 0.000 | 0.004** | 0.014 | 0.000 | 0.908 | 3.957*** | 7.125*** | 2.180** |
| Treasury (US) | 0.006** | 0.031 | -0.005 | 0.863 | 0.002 | 0.332 | 0.374 | 1.233 | -0.235 |
| ECB (EU) | 0.015*** | 0.000 | 0.005*** | 0.001 | 0.000 | 0.737 | 4.905*** | 8.784*** | 2.755*** |
| BOE (UK) | 0.015*** | 0.000 | 0.004 | 0.184 | -0.003* | 0.070 | 2.342** | 4.620*** | 1.976** |
| | **US Crisis** | | **EU Crisis** | | **Non-Crisis** | | **Wald Test** | | |
| **US Macro News** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Business Inventories | -0.007 | 0.245 | -0.001 | 0.870 | 0.007** | 0.032 | -0.537 | -2.044** | -0.921 |
| CPI Ex Food and Energy | | | 0.012 | 0.140 | 0.011*** | 0.000 | | | 0.056 |
| Δ in Nonfarm Payrolls | 0.029*** | 0.000 | 0.075*** | 0.000 | 0.061*** | 0.000 | -4.538*** | -4.943*** | 1.602 |
| Construction Spending | 0.034*** | 0.000 | 0.027*** | 0.000 | 0.012*** | 0.000 | 0.899 | 3.307*** | 2.386** |
| Consumer Conf. Index | -0.001 | 0.876 | 0.008 | 0.167 | 0.017*** | 0.000 | -1.165 | -2.912*** | -1.263 |
| FOMC Rate Decision | 0.170*** | 0.000 | 0.075*** | 0.000 | 0.091*** | 0.000 | 8.314*** | 8.897*** | -1.805* |
| Factory Orders | 0.017*** | 0.000 | 0.032*** | 0.000 | 0.008** | 0.013 | -1.588 | 1.536 | 2.611*** |
| GDP-Adv. | -0.001 | 0.893 | -0.004 | 0.782 | 0.028*** | 0.000 | 0.178 | -2.964*** | -2.066** |
| GDP-Prelim. | -0.028** | 0.018 | 0.008 | 0.613 | 0.018** | 0.017 | -1.831* | -3.285*** | -0.587 |
| Housing Starts | 0.022*** | 0.002 | 0.015 | 0.239 | 0.008*** | 0.004 | 0.493 | 1.726* | 0.479 |
| Initial Jobless Claims | 0.025*** | 0.000 | 0.008** | 0.049 | 0.014*** | 0.000 | 3.587*** | 3.734*** | -1.394 |
| PPI MoM | 0.018*** | 0.007 | 0.005 | 0.637 | 0.001 | 0.659 | 1.018 | 2.268** | 0.335 |
| Personal Cons.-Prelim. | 0.074*** | 0.000 | 0.009 | 0.536 | 0.006 | 0.469 | 3.432*** | 4.998*** | 0.225 |
| Retail Sales Ex Auto | 0.051*** | 0.000 | 0.031*** | 0.003 | 0.018*** | 0.000 | 1.753* | 5.925*** | 1.244 |
| Trade Balance | 0.006 | 0.290 | 0.002 | 0.812 | 0.025*** | 0.000 | 0.461 | -3.051*** | -3.032*** |
| **GE Macro News** | | | | | | | | | |
| GDP SA QoQ-Prelim. | 0.009** | 0.045 | 0.004 | 0.685 | -0.003 | 0.341 | 0.417 | 2.172** | 0.684 |
| Imports QoQ | 0.013* | 0.070 | -0.004 | 0.867 | -0.004 | 0.447 | 0.692 | 1.895* | 0.015 |
| Industrial Prod.-Prelim. | 0.011** | 0.032 | 0.010 | 0.161 | 0.005 | 0.133 | 0.083 | 1.000 | 0.664 |
| Retail Sales MoM | 0.017** | 0.012 | -0.002 | 0.804 | 0.002 | 0.465 | 1.940* | 2.069** | -0.498 |
| **JP Macro News** | | | | | | | | | |
| GDP-Prelim. | -0.013 | 0.435 | -0.002 | 0.951 | 0.035** | 0.029 | -0.382 | -2.054** | -1.193 |
| **UK Macro News** | | | | | | | | | |
| CPI MoM | 0.013* | 0.082 | 0.036*** | 0.009 | 0.005 | 0.292 | -1.480 | 0.976 | 2.179** |
| GDP QoQ-Adv. | 0.073*** | 0.000 | 0.002 | 0.848 | 0.006 | 0.226 | 4.269*** | 4.723*** | -0.374 |
| Retail Sales Ex Auto | -0.003 | 0.700 | -0.029** | 0.025 | -0.002 | 0.800 | 1.727* | -0.150 | -1.931* |
| Visible Trade Balance | 0.071*** | 0.000 | -0.007* | 0.092 | 0.004 | 0.177 | 6.070*** | 5.299*** | -2.158** |

Note: The table shows public communication effects on the EUR/USD returns by institution from the Volatility equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 25: The effect of the speech institution on GBP/USD volatility

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **Institution** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Fed (US) | 0.019*** | 0.000 | 0.000 | 0.893 | -0.002** | 0.040 | 8.197*** | 11.106*** | 0.741 |
| Treasury (US) | 0.006** | 0.028 | -0.014 | 0.625 | -0.003* | 0.100 | 0.693 | 2.745*** | -0.383 |
| ECB (EU) | 0.019*** | 0.000 | -0.004*** | 0.008 | -0.003*** | 0.000 | 10.546*** | 12.659*** | -0.530 |
| Bundesbank (EU) | 0.048*** | 0.000 | -0.003 | 0.640 | -0.005 | 0.100 | 3.768*** | 4.422*** | 0.251 |
| BOJ (JP) | 0.010** | 0.028 | -0.002 | 0.710 | 0.002 | 0.366 | 1.751* | 1.554 | -0.714 |
| BOE (UK) | 0.018** | 0.000 | -0.002 | 0.566 | 0.005*** | 0.001 | 4.042*** | 3.237*** | -1.932* |
| | **US Crisis** | | **EU Crisis** | | **Non-Crisis** | | **Wald Test** | | |
| **US Macro News** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Business Inventories | 0.018*** | 0.001 | 0.009 | 0.258 | 0.003 | 0.361 | 0.934 | 2.398** | 0.732 |
| Δ in Nonfarm Payrolls | 0.035*** | 0.000 | 0.051*** | 0.000 | 0.049*** | 0.000 | -1.640 | -2.241** | 0.251 |
| Construction Spending | 0.044*** | 0.000 | 0.011** | 0.049 | 0.008** | 0.013 | 4.045*** | 5.211*** | 0.420 |
| Consumer Conf. Index | 0.008 | 0.110 | 0.013** | 0.034 | 0.013*** | 0.000 | -0.613 | -0.868 | -0.082 |
| FOMC Rate Decision | 0.125*** | 0.000 | 0.051*** | 0.000 | 0.072*** | 0.000 | 6.410*** | 5.887*** | -2.364** |
| Factory Orders | 0.022*** | 0.000 | 0.021** | 0.015 | 0.006* | 0.058 | 0.131 | 2.839*** | 1.592 |
| GDP-Adv | -0.001 | 0.926 | -0.015 | 0.316 | 0.015** | 0.013 | 0.834 | -1.577 | -1.878* |
| Housing Starts | 0.018*** | 0.010 | 0.011 | 0.398 | 0.008*** | 0.005 | 0.534 | 1.291 | 0.173 |
| Industrial Production- | 0.008** | 0.043 | -0.005 | 0.400 | -0.008** | 0.041 | 1.844* | 2.878*** | 0.402 |
| Initial Jobless Claims | 0.014*** | 0.000 | 0.000 | 0.940 | 0.007*** | 0.000 | 2.953*** | 2.371** | -1.623 |
| New Home Sales | 0.023* | 0.070 | -0.006 | 0.793 | 0.006** | 0.015 | 1.151 | 1.277 | -0.559 |
| PPI MoM | 0.031*** | 0.000 | -0.003 | 0.785 | 0.001 | 0.718 | 2.607*** | 3.952*** | -0.361 |
| Personal Consp- | 0.071*** | 0.000 | 0.002 | 0.890 | 0.007 | 0.390 | 3.646*** | 4.690*** | -0.265 |
| Retail Sales Ex Auto | 0.024*** | 0.000 | 0.026** | 0.012 | 0.020*** | 0.000 | -0.222 | 0.672 | 0.577 |
| Trade Balance | 0.016*** | 0.004 | 0.015** | 0.036 | 0.018*** | 0.000 | 0.108 | -0.421 | -0.470 |
| **GE Macro News** | | | | | | | | | |
| GDP SA-Prelim. | 0.013*** | 0.004 | -0.003 | 0.750 | -0.005 | 0.138 | 1.443 | 3.219*** | 0.163 |
| Industrial Production | 0.010** | 0.044 | 0.002 | 0.808 | 0.003 | 0.424 | 0.956 | 1.266 | -0.105 |
| PPI MoM | 0.012*** | 0.002 | | | 0.003 | 0.438 | | 1.666* | |
| Retail Sales MoM | 0.014** | 0.044 | 0.003 | 0.679 | 0.001 | 0.720 | 1.106 | 1.731* | 0.255 |
| **UK Macro News** | | | | | | | | | |
| CPI MoM | 0.026*** | 0.001 | 0.022 | 0.118 | 0.010** | 0.019 | 0.267 | 1.849* | 0.802 |
| GDP QoQ-Adv | 0.029** | 0.033 | 0.027*** | 0.010 | 0.019*** | 0.000 | 0.109 | 0.669 | 0.673 |
| Industrial Production | 0.011* | 0.078 | 0.002 | 0.656 | 0.010*** | 0.001 | 1.043 | 0.135 | -1.237 |
| Visible Trade Balance | 0.020* | 0.099 | -0.005 | 0.203 | -0.001 | 0.674 | 1.974** | 1.702* | -0.754 |

Note: The table shows public communication and macroeconomic news effects on the GBP/USD returns by institution from the Volatility equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 26: The effect of the speech institution on JPY/USD volatility

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **Institution** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Fed (US) | 0.013*** | 0.000 | -0.003* | 0.050 | 0.001 | 0.5191 | 6.343*** | 6.054*** | -2.049** |
| Treasury (US) | 0.012*** | 0.000 | -0.028 | 0.372 | 0.000 | 0.9396 | 1.276 | 3.380*** | -0.895 |
| ECB (EU) | 0.016*** | 0.000 | -0.003 | 0.103 | -0.002*** | 0.0065 | 7.655*** | 9.329*** | -0.239 |
| Bundesbank (EU) | 0.011 | 0.403 | -0.017** | 0.028 | -0.007* | 0.0639 | 1.859* | 1.300 | -1.236 |
| BOJ (JP) | 0.015*** | 0.005 | -0.005 | 0.424 | 0.003 | 0.2458 | 0.000 | 2.007** | -1.210 |
| BOE (UK) | 0.007* | 0.069 | -0.007** | 0.049 | -0.004** | 0.0167 | 2.665*** | 2.589*** | -0.761 |
| | **US Crisis** | | **EU Crisis** | | **Non-Crisis** | | **Wald Test** | | |
| **US Macro News** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Δ in Nonfarm Payrolls | 0.058*** | 0.000 | 0.009 | 0.258 | 0.003 | 0.361 | 1.841* | 3.383*** | 4.532*** |
| Construction Spending | 0.051*** | 0.000 | 0.051*** | 0.000 | 0.049*** | 0.000 | 4.447*** | 5.489*** | 0.205 |
| Consumer Conf. Index | 0.014*** | 0.008 | 0.011** | 0.049 | 0.008** | 0.013 | 2.232** | 0.279 | 2.230** |
| FOMC Rate Decision | 0.146*** | 0.000 | 0.013** | 0.034 | 0.013*** | 0.000 | 4.742*** | 4.741*** | -1.364 |
| Factory Orders | 0.008 | 0.133 | 0.051*** | 0.000 | 0.072*** | 0.000 | -0.948 | -0.627 | -1.382 |
| GDP-Prelim. | -0.002 | 0.865 | 0.021** | 0.015 | 0.006* | 0.058 | -1.560 | -0.752 | 1.149 |
| Housing Starts | 0.038*** | 0.000 | -0.015 | 0.316 | 0.015** | 0.013 | 2.626*** | 3.151*** | -1.055 |
| Initial Jobless Claims | 0.014*** | 0.000 | 0.011 | 0.398 | 0.008*** | 0.005 | 1.536 | 0.917 | 1.058 |
| New Home Sales | 0.099*** | 0.000 | -0.005 | 0.400 | -0.008** | 0.041 | 2.094** | 6.190*** | 1.316 |
| PPI MoM | 0.038*** | 0.000 | 0.000 | 0.940 | 0.007*** | 0.000 | 2.909*** | 3.715*** | -0.859 |
| Personal Cons.-Prelim. | 0.047*** | 0.000 | -0.006 | 0.793 | 0.006** | 0.015 | 3.401*** | 2.973*** | -1.389 |
| Retail Sales Ex Auto MoM | 0.022*** | 0.000 | -0.003 | 0.785 | 0.001 | 0.718 | 2.649*** | 0.155 | -2.666*** |
| Trade Balance | 0.015** | 0.014 | 0.002 | 0.890 | 0.007 | 0.390 | 2.707*** | 0.604 | -2.631*** |
| **GE Macro News** | | | | | | | | | |
| Imports QoQ | -0.008 | 0.344 | -0.012 | 0.647 | -0.004 | 0.260 | 0.159 | -1.765* | -0.831 |
| Industrial Prod.-Prelim. | 0.016*** | 0.006 | -0.006 | 0.427 | -0.002 | 0.614 | 2.236** | 2.938*** | -0.264 |
| Retail Sales MoM | 0.016** | 0.037 | 0.003 | 0.695 | -0.004 | 0.359 | 0.000 | 2.128** | 0.550 |
| **JP Macro News** | | | | | | | | | |
| Retail Trade YoY | 0.025** | 0.049 | 0.001 | 0.897 | -0.004 | 0.359 | 1.686* | 2.154** | 0.571 |
| **UK Macro News** | | | | | | | | | |
| GDP QoQ-Adv. | 0.056*** | 0.000 | -0.007 | 0.558 | -0.002 | 0.696 | 3.329*** | 3.638*** | -0.347 |

Note: The table shows public communication effects on the JPY/USD returns by institution from the Volatility equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 27: The effect of the speakers' position on EUR/USD volatility

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **Position** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| President(US) | 0.016*** | 0.000 | 0.002 | 0.439 | 0.001 | 0.173 | 4.596*** | 5.889*** | 0.101 |
| Chair(US) | 0.015*** | 0.000 | 0.014*** | 0.002 | 0.009*** | 0.000 | 0.345 | 1.910* | 1.024 |
| Board of Governor(US) | 0.005* | 0.099 | -0.003 | 0.473 | -0.003* | 0.062 | 1.570 | 2.302** | -0.026 |
| Chief(US) | 0.003 | 0.492 | -0.002 | 0.636 | -0.005*** | 0.006 | 0.826 | 1.752* | 0.765 |
| President(EU) | 0.025*** | 0.000 | 0.004 | 0.110 | 0.006*** | 0.000 | 5.167*** | 6.250*** | -0.388 |
| Chair(EU) | 0.017** | 0.011 | 0.004 | 0.698 | -0.009** | 0.042 | 1.111 | 3.240*** | 1.190 |
| Chief Executive(EU) | -0.058** | 0.041 | | | | | | | |
| Board of Governor(EU) | | | 0.011* | 0.089 | -0.007 | 0.137 | | | 2.245** |
| Governing Council(EU) | 0.012*** | 0.001 | -0.002 | 0.720 | -0.006*** | 0.006 | 2.142** | 4.281*** | 0.643 |
| | **US Crisis** | | **EU Crisis** | | **Non-Crisis** | | **Wald Test** | | |
| **US Macro News** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Business Inventories | -0.008 | 0.173 | -0.003 | 0.715 | 0.007** | 0.026 | -0.488 | -2.256** | -1.136 |
| CPI Ex Food and Energy | | | 0.011 | 0.157 | 0.011*** | 0.000 | | | 0.017 |
| Δ in Nonfarm Payrolls | 0.031*** | 0.000 | 0.079*** | 0.000 | 0.061*** | 0.000 | -4.791*** | -4.642*** | 2.106** |
| Construction Spending | 0.033*** | 0.000 | 0.028*** | 0.000 | 0.012*** | 0.000 | 0.632 | 3.064*** | 2.466** |
| Consumer Conf. Index | -0.001 | 0.912 | 0.009 | 0.110 | 0.017*** | 0.000 | -1.301 | -2.904*** | -1.104 |
| FOMC Rate Decision | 0.171*** | 0.000 | 0.083*** | 0.000 | 0.091*** | 0.000 | 7.728*** | 8.992*** | -0.956 |
| Factory Orders | 0.015*** | 0.001 | 0.029*** | 0.001 | 0.009*** | 0.009 | -1.414 | 1.169 | 2.203** |
| GDP-Adv. | -0.01 | 0.196 | -0.015 | 0.309 | 0.027*** | 0.000 | 0.271 | -3.724*** | -2.645*** |
| GDP-Prelim. | -0.025** | 0.033 | -0.002 | 0.890 | 0.014* | 0.059 | -1.172 | -2.814*** | -0.950 |
| Housing Starts | 0.021*** | 0.003 | 0.018 | 0.144 | 0.008*** | 0.005 | 0.204 | 1.680* | 0.774 |
| Initial Jobless Claims | 0.023*** | 0.000 | 0.007* | 0.075 | 0.013*** | 0.000 | 3.287*** | 3.168*** | -1.443 |
| PPI MoM | 0.014** | 0.048 | 0.006 | 0.606 | 0.001 | 0.792 | 0.606 | 1.694* | 0.425 |
| Personal Cons.-Prelim. | 0.070*** | 0.000 | 0.011 | 0.460 | 0.005 | 0.507 | 3.108*** | 4.717*** | 0.359 |
| Retail Sales Ex Auto | 0.051*** | 0.000 | 0.026** | 0.014 | 0.017*** | 0.000 | 2.210** | 5.893*** | 0.758 |
| Trade Balance | 0.002 | 0.756 | 0.000 | 0.979 | 0.024*** | 0.000 | 0.170 | -3.623*** | -3.166*** |
| **Germany Macro News** | | | | | | | | | |
| Imports QoQ | 0.015** | 0.036 | -0.004 | 0.878 | -0.004 | 0.457 | 0.763 | 2.112** | 0.024 |
| Industrial Prod.-Prelim. | 0.010** | 0.044 | 0.011 | 0.126 | 0.005 | 0.134 | -0.101 | 0.886 | 0.784 |
| Retail Sales MoM | 0.017** | 0.011 | -0.001 | 0.906 | 0.002 | 0.446 | 1.865* | 2.080** | -0.389 |
| **UK Macro News** | | | | | | | | | |
| BOE Bank Rate | -0.005* | 0.088 | | | 0.004 | 0.501 | | -1.296 | |
| CPI MoM | 0.013* | 0.093 | 0.024* | 0.083 | 0.004 | 0.304 | -0.736 | 0.940 | 1.352 |
| GDP QoQ-Adv. | 0.081*** | 0.000 | -0.005 | 0.644 | 0.005 | 0.335 | 5.141*** | 5.369*** | -0.847 |
| Visible Trade Balance | 0.071*** | 0.000 | -0.007* | 0.098 | 0.004 | 0.211 | 6.013*** | 5.276*** | -2.075** |

Note: The table shows public communication and macroeconomic news effects on the EUR/USD returns by position from the Volatility equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 28: The effect of the speakers' position on GBP/USD volatility

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **Position** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| President(US) | 0.015*** | 0.000 | 0.002 | 0.286 | 0.001 | 0.151 | 4.122*** | 5.516*** | 0.330 |
| Chair(US) | 0.015*** | 0.000 | 0.014*** | 0.002 | 0.008*** | 0.000 | 0.193 | 1.826* | 1.133 |
| Board of Governor(US) | 0.006* | 0.071 | -0.003 | 0.469 | -0.003* | 0.055 | 1.668* | 2.460** | -0.015 |
| Chief executive(US) | 0.002 | 0.679 | -0.002 | 0.615 | -0.005*** | 0.006 | 0.645 | 1.509 | 0.746 |
| President(EU) | 0.025*** | 0.000 | 0.005* | 0.074 | 0.006*** | 0.000 | 5.049*** | 6.187*** | -0.300 |
| Chairman(EU) | 0.017** | 0.013 | 0.007 | 0.473 | -0.010** | 0.027 | 0.815 | 3.299*** | 1.560 |
| Board of Governor(EU) | 0.002 | 0.799 | 0.008* | 0.081 | 0.000 | 0.847 | -0.697 | 0.304 | 1.615 |
| Chief Executive(EU) | -0.060** | 0.034 | 0.000 | | | | | | |
| Governing Council(EU) | 0.010*** | 0.003 | -0.002 | 0.741 | -0.006*** | 0.005 | 1.905 | 2.426** | 0.681 |
| | **US Crisis** | | **EU Crisis** | | **Non-Crisis** | | **Wald Test** | | |
| **US Macro News** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Business Inventories | -0.010* | 0.091 | -0.001 | 0.930 | 0.006** | 0.048 | -0.904 | -4.737*** | -0.788 |
| CPI Ex Food and Energy | | | 0.013 | 0.109 | 0.011*** | 0.000 | | | 0.203 |
| Δ in Nonfarm Payrolls | 0.031*** | 0.000 | 0.081*** | 0.000 | 0.061*** | 0.000 | -4.914*** | -3.123*** | 2.178** |
| Construction Spending | 0.030*** | 0.000 | 0.028*** | 0.000 | 0.012*** | 0.000 | 0.000 | 9.041*** | 2.540** |
| Consumer Conf. Index | -0.001 | 0.820 | 0.009 | 0.121 | 0.018*** | 0.000 | -1.342 | -1.212 | -1.251 |
| FOMC Rate Decision | 0.170*** | 0.000 | 0.083*** | 0.000 | 0.090*** | 0.000 | 7.606*** | 3.526*** | -0.750 |
| Factory Orders | 0.015*** | 0.001 | 0.031*** | 0.000 | 0.009*** | 0.008 | -1.658* | 2.917*** | 2.487** |
| GDP-Adv. | -0.008 | 0.298 | -0.013 | 0.368 | 0.027*** | 0.000 | 0.290 | -1.716* | -2.539** |
| GDP-Prelim. | -0.026** | 0.030 | -0.002 | 0.877 | 0.015** | 0.044 | -1.181 | -3.096*** | -1.023 |
| Housing Starts | 0.021*** | 0.003 | 0.017 | 0.174 | 0.008*** | 0.009 | 0.274 | 1.853* | 0.717 |
| Initial Jobless Claims | 0.022*** | 0.000 | 0.008* | 0.055 | 0.013*** | 0.000 | 3.117*** | 1.612 | -1.308 |
| New Home Sales | 0.026** | 0.038 | 0.027 | 0.202 | 0.002 | 0.368 | -0.038 | 4.791*** | 1.156 |
| PPI MoM | 0.013* | 0.059 | 0.004 | 0.728 | 0.001 | 0.789 | 0.702 | 6.032*** | 0.262 |
| Personal Cons.-Prelim. | 0.070*** | 0.000 | 0.012 | 0.439 | 0.005 | 0.520 | 3.125*** | 3.679*** | 0.400 |
| Retail Sales Ex Auto | 0.050*** | 0.000 | 0.029*** | 0.005 | 0.016*** | 0.000 | 1.895* | 1.742* | 1.156 |
| Trade Balance | 0.001 | 0.802 | 0.002 | 0.797 | 0.024*** | 0.000 | -0.049 | -1.902* | -2.958*** |
| **Germany Macro News** | | | | | | | | | |
| GDP SA QoQ-Prelim. | 0.007* | 0.094 | 0.002 | 0.820 | -0.002 | 0.497 | 0.450 | 0.579 | 0.430 |
| Imports QoQ | 0.014* | 0.054 | 0.001 | 0.981 | -0.003 | 0.534 | 0.544 | 1.897* | 0.168 |
| Industrial Prod.-Prelim. | 0.009* | 0.087 | 0.012* | 0.085 | 0.005 | 0.110 | -0.431 | 1.870* | 0.919 |
| Retail Sales MoM | 0.016** | 0.018 | 0.000 | 0.990 | 0.002 | 0.437 | 1.637 | 1.213 | -0.272 |
| **Japan Macro News** | | | | | | | | | |
| GDP-Prelim. | -0.016 | 0.362 | -0.014 | 0.589 | 0.028* | 0.076 | -0.056 | -5.500*** | -1.385 |
| **UK Macro News** | | | | | | | | | |
| BoE Bank Rate | -0.005* | 0.094 | | | 0.004 | 0.550 | | -4.883*** | |
| GDP QoQ-Adv. | 0.080*** | 0.000 | -0.004 | 0.676 | 0.002 | 0.747 | 5.028*** | 5.500*** | -0.518 |
| Visible Trade Balance | 0.065*** | 0.000 | -0.006 | 0.126 | 0.003 | 0.300 | 5.535*** | 4.883*** | -1.845* |

Note: The table shows public communications and macroeconomic news effects on the GBP/USD returns by position from the Volatility equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 29: The effect of the speakers' position on JPY/USD volatility

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **US Position** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| President | 0.017*** | 0.000 | -0.003 | 0.182 | -0.001 | 0.594 | 5.976*** | 6.586*** | -0.969 |
| Chairman | 0.007* | 0.051 | 0.007 | 0.146 | 0.007*** | 0.000 | -0.085 | -0.049 | 0.060 |
| Secretary | 0.019*** | 0.000 | -0.028 | 0.371 | 0.002 | 0.304 | 1.477 | 4.755*** | -0.958 |
| Board of Governor | 0.004 | 0.321 | -0.012** | 0.014 | -0.003* | 0.083 | 2.553** | 1.653* | -1.697* |
| **EU Position** | | | | | | | | | |
| President | 0.019*** | 0.000 | -0.003 | 0.397 | -0.004** | 0.015 | 5.016*** | 6.730*** | 0.277 |
| Board of Governor | 0.000 | 0.959 | -0.001 | 0.780 | 0.006** | 0.050 | 0.103 | -0.693 | -1.212 |
| Chief Executive | -0.063** | 0.048 | | | | | | | |
| Governing Council | 0.023*** | 0.000 | 0.003 | 0.655 | -0.001 | 0.544 | 2.866*** | 5.407*** | 0.633 |
| | **US Crisis** | | **EU Crisis** | | **Non-Crisis** | | **Wald Test** | | |
| **US Macro News** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| CPI Ex Food and Energy | | | 0.011 | 0.236 | 0.010*** | 0.006 | | | 0.099 |
| Δ in Nonfarm Payrolls | 0.059*** | 0.000 | 0.036*** | 0.000 | 0.081*** | 0.000 | 2.021** | -3.124*** | -4.550*** |
| Construction Spending | 0.052*** | 0.000 | 0.011* | 0.082 | 0.009** | 0.013 | 4.484*** | 5.544*** | 0.218 |
| Consumer Conf. Index | 0.014*** | 0.008 | -0.005 | 0.454 | 0.012*** | 0.002 | 2.257** | 0.304 | -2.237** |
| FOMC Rate Decision | 0.146*** | 0.000 | 0.085*** | 0.000 | 0.098*** | 0.000 | 4.694*** | 4.754*** | -1.289 |
| Factory Orders | 0.007 | 0.162 | -0.010 | 0.321 | 0.011*** | 0.003 | 1.528 | -0.648 | -2.007** |
| GDP-Prelim. | -0.025* | 0.057 | 0.026 | 0.138 | 0.011 | 0.201 | -2.332** | -2.294** | 0.775 |
| Housing Starts | 0.039*** | 0.000 | -0.002 | 0.874 | 0.010*** | 0.002 | 2.588*** | 3.374*** | -0.879 |
| Industrial Prod.-Prelim. | 0.008* | 0.098 | -0.004 | 0.593 | -0.003 | 0.554 | 1.379 | 1.612 | -0.128 |
| Initial Jobless Claims | 0.014*** | 0.000 | 0.006 | 0.162 | 0.011*** | 0.000 | 1.393 | 0.741 | -1.019 |
| New Home Sales | 0.100*** | 0.000 | 0.032 | 0.184 | 0.008*** | 0.007 | 2.417** | 6.298*** | 0.991 |
| PPI MoM | 0.037*** | 0.000 | -0.005 | 0.683 | 0.006* | 0.085 | 2.837*** | 3.588*** | -0.860 |
| Personal Cons.-Prelim. | 0.052*** | 0.000 | -0.017 | 0.303 | 0.000 | 0.982 | 3.247*** | 3.351*** | -0.909 |
| Retail Sales Ex Auto | 0.020*** | 0.000 | -0.014 | 0.240 | 0.020*** | 0.000 | 2.671*** | -0.012 | -2.776*** |
| Trade Balance | 0.017*** | 0.004 | -0.012 | 0.128 | 0.011*** | 0.002 | 2.950*** | 0.867 | -2.696*** |
| **Germany Macro News** | | | | | | | | | |
| Industrial Prod.-Prelim. | 0.019*** | 0.001 | -0.006 | 0.432 | -0.004 | 0.233 | 2.570*** | 3.472*** | -0.230 |
| Retail Sales MoM | 0.016** | 0.043 | 0.004 | 0.643 | -0.001 | 0.645 | 1.078 | 2.047** | 0.600 |
| **UK Macro News** | | | | | | | | | |
| CPI MoM | 0.006 | 0.482 | 0.007 | 0.641 | 0.007 | 0.184 | -0.080 | -0.058 | 0.052 |
| GDP QoQ-Adv. | 0.057*** | 0.000 | -0.006 | 0.574 | -0.003 | 0.574 | 3.357*** | 3.750*** | -0.249 |
| Industrial Production | -0.002 | 0.815 | -0.008 | 0.170 | 0.000 | 0.955 | 0.717 | -0.235 | -1.220 |
| Retail Sales Ex Auto | -0.003 | 0.715 | -0.007 | 0.621 | -0.005 | 0.433 | 0.236 | 0.191 | -0.118 |
| Visible Trade Balance | 0.012 | 0.400 | -0.004 | 0.429 | 0.002 | 0.517 | 1.054 | 0.648 | -1.022 |

Note: The table shows public communication effects on the JPY/USD returns by position from the Volatility equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 30 :Descriptive statistics of jumps

| | EUR/USD | GBP/USD | JPY/USD |
|---|---|---|---|
| E(\|return\|) | 0.02 | 0.02 | 0.03 |
| Annualized SD | 9.9 | 9.92 | 10.89 |
| # jump days | 985 | 818 | 943 |
| P (jump day) (%) | 38.39 | 31.88 | 36.75 |
| E(#jump\|jump day) | 1.48 | 1.43 | 1.55 |
| # jumps | 1459 | 1169 | 1464 |
| P (jump) (%) | 0.21 | 0.17 | 0.21 |
| E(\|jumpsize\|) | 0.2 | 0.19 | 0.24 |
| SD(\|jumpsize\|) | 0.12 | 0.13 | 0.18 |
| # jump>0 | 757 | 595 | 820 |
| P (jump>0) (%) | 0.11 | 0.09 | 0.12 |
| E(jumpsize\|jump>0) | 0.2 | 0.19 | 0.25 |
| SD(jumpsize\|jump>0) | 0.12 | 0.12 | 0.18 |
| # jump<0 | 702 | 574 | 644 |
| P (jump<0) (%) | 0.1 | 0.08 | 0.09 |
| E(jumpsize\|jump<0) | -0.2 | -0.21 | -0.24 |
| SD(jumpsize\|jump<0) | 0.11 | 0.14 | 0.19 |

Note: This table displays the summary statistics of jumps which includes five panels. The first panel shows the absolute value of the return E(|return|) and annualized standard deviation of intraday returns (Annualized SD). The second panel shows the total number of days with at least one jump (#jump days), the probability of a jump day is calculated as ($P\ (\text{jump day}) = 100 * (\#\text{jump days}/\#\text{days})$), and the number of jumps in a day( $E(\#\text{jump}|\text{jump day}) = \#\text{jumps}/\#\text{jump days}$ ). Panel three provides the total number of jumps (#jumps)) the percentage of jumps P (jump) (%), the absolute mean of the jump size E(|jumpsize|), and their standard deviation SD(|jumpsize|),note that the percentage of jumps is calculated as (P (jump)=100*(#jumps/#observations)). In the last two panels, the jumps are split into two sets, positive and negative jumps. The percentage of negative jumps is ($100 * (\#\text{jumps} < 0/\#\text{jumps})$), and the associated standard error is calculated as ($100*\sqrt{\frac{(1-\#\text{jumps}<0/\#\text{jumps})*(\#\text{jumps}<0/\#\text{jumps})}{\#\text{jumps}}}$).

Table 31: The effect of the speakers' name on EUR/USD jumps

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **Name** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Bernanke(US) | -0.001 | 0.558 | 0.007*** | 0.000 | 0.005*** | 0.000 | -3.333*** | -0.009 | 1.216 |
| Geithner(US) | 0.000 | 0.862 | -0.004 | 0.588 | 0.002* | 0.085 | 0.473 | -0.987 | -0.806 |
| Kohn(US) | 0.000 | 0.873 | | | 0.004** | 0.023 | | -1.410 | |
| Pianalto(US) | 0.040*** | 0.000 | 0.000 | 0.889 | -0.001 | 0.731 | 8.354*** | 9.405*** | 0.048 |
| Plosser(US) | -0.001 | 0.746 | 0.000 | 0.845 | 0.003** | 0.046 | -0.108 | -1.202 | -1.152 |
| Santomero(US) | | | | | 0.028*** | 0.000 | | | |
| Draghi(EU) | 0.000 | 0.894 | 0.000 | 0.813 | 0.018*** | 0.918 | 0.000 | 0.000 | 0.000 |
| Papademos(EU) | 0.036*** | 0.000 | | | 0.000*** | 0.000 | | 9.946*** | |
| Trichet(EU) | 0.004*** | 0.009 | 0.000 | 0.913 | -0.001 | 0.209 | 1.037 | 2.901*** | 0.140 |
| Tucker(UK) | 0.000 | 0.921 | 0.000 | 0.934 | -0.001*** | 0.000 | -0.023 | 2.375** | 2.691*** |
| **Macroeconomic News** | | | | | | | | | |
| Δ in Nonfarm Payrolls(US) | -0.001 | 0.681 | -0.001 | 0.840 | 0.003** | 0.014 | -0.066 | -1.501 | -1.016 |
| FOMC Rate Decision(US) | 0.052*** | 0.000 | 0.043*** | 0.000 | 0.046*** | 0.000 | 2.008** | 1.659* | -0.927 |
| Initial Jobless Claims(US) | 0.002* | 0.095 | 0.000 | 0.830 | 0.003*** | 0.000 | 1.060 | -1.383 | -2.102** |
| Trade Balance(US) | -0.001 | 0.687 | -0.001 | 0.789 | -0.003** | -0.016 | -0.036 | 0.867 | 0.752 |
| Visible Trade Balance(UK) | 0.000 | 0.933 | 0.000 | 0.917 | 0.000 | 0.835 | -0.046 | -0.028 | 0.045 |

Note: The table shows public communication and macroeconomic news effects on the EUR/USD jumps by name from the jump equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 32: The effect of the speakers' name on GBP/USD jumps

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **Name** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Bernanke(US) | 0.000 | 0.776 | 0.006*** | 0.000 | 0.001* | 0.081 | -3.064*** | -1.148 | 2.570*** |
| Geithner(US) | 0.000 | 0.847 | -0.003 | 0.619 | 0.005*** | 0.000 | 0.425 | -2.528** | -1.257 |
| Kohn(US) | 0.000 | 0.873 | | | 0.003* | 0.094 | | -1.076 | |
| Pianalto(US) | 0.166*** | 0.000 | 0.000 | 0.938 | 0.000 | 0.817 | 38.162*** | 42.846*** | 0.047 |
| Santomero(US) | | | | | 0.020*** | 0.000 | | | |
| Stern(US) | -0.010*** | 0.000 | | | 0.000 | 0.912 | | -2.749*** | |
| Williams(US) | | | 0.000 | 0.923 | 0.004** | 0.041 | 0.000 | 0.000 | -1.443 |
| Papademos(EU) | 0.036*** | 0.000 | 0.000 | 0.999 | 0.000 | 0.848 | 0.000 | 11.175*** | 0.000 |
| Trichet(EU) | 0.003** | 0.021 | 0.000 | 0.916 | 0.000 | 0.749 | 0.926 | 2.199** | -0.040 |
| Iwata(JP) | 0.000 | 0.000 | | | 0.030*** | 0.000 | 0.000 | 0.000 | 0.000 |
| Carney(UK) | 0.000 | 0.977 | | | 0.020*** | 0.000 | 0.000 | -2.073** | 0.000 |
| **US Macro News** | | | | | | | | | |
| Business Inventories | 0.000 | 0.869 | 0.000 | 0.930 | 0.007*** | 0.000 | -0.024 | -3.511*** | -2.611*** |
| Δ in Nonfarm Payrolls | 0.007*** | 0.001 | 0.000 | 0.882 | 0.007*** | 0.000 | 2.068** | -0.052 | -2.398** |
| FOMC Rate Decision | 0.042*** | 0.000 | 0.027*** | 0.000 | 0.037*** | 0.000 | 3.879*** | 1.670* | -3.324*** |
| Trade Balance | -0.001 | 0.762 | 0.000 | 0.958 | -0.002* | 0.083 | -0.145 | 0.608 | 0.666 |
| Housing Starts YoY | -0.001 | 0.771 | 0.000 | 0.978 | 0.003** | 0.017 | -0.218 | -1.037 | -1.015 |
| Bank of England Rate | 0.000 | 0.911 | | | -0.010*** | 0.000 | | 3.949*** | |
| CPI MoM | -0.001 | 0.835 | 0.000 | 0.988 | -0.002 | 0.307 | -0.111 | 0.332 | 0.317 |
| GDP QoQ-Adv | -0.001 | 0.884 | -0.002 | 0.487 | -0.008*** | 0.000 | 0.309 | 1.540 | 1.463 |
| Industrial Production | 0.000 | 0.925 | -0.002 | 0.361 | -0.001 | 0.411 | 0.525 | 0.276 | -0.389 |
| Retail Sales Ex Auto | 0.000 | 0.937 | 0.000 | 0.945 | 0.003 | 0.118 | 0.100 | -0.893 | -0.722 |
| **UK Macro News** | | | | | | | | | |
| Visible Trade Balance | -0.001 | 0.864 | 0.000 | 0.734 | 0.000 | 0.819 | -0.051 | -0.107 | -0.130 |

Note: The table shows public communication and macroeconomic news effects on the GBP/USD jumps by name from the jump equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 33: The effect of the speakers' name on JPY/USD jumps

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **Name** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Bernanke(US) | -0.002 | 0.366 | -0.001 | 0.734 | 0.004*** | 0.000 | -0.285 | -2.599*** | -1.804* |
| Paulson(US) | 0.016*** | 0.000 | 0.000 | 0.999 | 0.000 | 0.853 | 0.000 | 5.544*** | 0.000 |
| Dombret(EU) | 0.000 | 0.000 | -0.001 | 0.768 | 0.006* | 0.051 | 0.000 | 0.000 | -1.348 |
| Nowotny(EU) | -0.001 | 0.857 | 0.009*** | 0.000 | 0.000 | 0.798 | -2.373** | -0.035 | 3.089*** |
| Ordonez(EU) | 0.015*** | 0.000 | 0.000 | 0.967 | 0.000 | 0.887 | 1.715* | 3.506*** | 0.003 |
| Stark(EU) | -0.001 | 0.673 | 0.010** | 0.016 | 0.000 | 0.889 | -2.155** | -0.282 | 2.221** |
| **Macroeconomic News** | | | | | | | | | |
| FOMC Rate Decision(US) | 0.061*** | 0.000 | 0.064*** | 0.000 | 0.041*** | 0.000 | -0.617 | 4.402*** | 5.197*** |
| GDP Annual QoQ Adv(US) | -0.002 | 0.580 | 0.000 | 0.946 | -0.007** | 0.021 | -0.206 | 0.945 | 0.816 |
| PPI MoM(US) | -0.002 | 0.522 | 0.000 | 0.969 | 0.008*** | 0.000 | -0.371 | -2.643*** | -1.316 |
| Retail Sales Ex Auto(US) | -0.001 | 0.767 | -0.005 | 0.332 | -0.003* | 0.066 | 0.770 | 0.857 | -0.354 |
| BOE Bank Rate(UK) | -0.005*** | 0.000 | | | 0.000 | 0.957 | | -1.362 | |
| CPI MoM(UK) | 0.000 | 0.983 | 0.000 | 0.975 | 0.000 | 0.927 | -0.038 | 0.027 | 0.057 |
| GDP QoQ-Adv(UK) | -0.001 | 0.838 | 0.000 | 0.976 | 0.000 | 0.939 | -0.144 | -0.163 | 0.008 |
| Industrial Prod. MoM(UK) | 0.000 | 0.935 | -0.001 | 0.852 | 0.000 | 0.905 | 0.060 | -0.021 | -0.104 |
| Retail Sales Ex Auto(UK) | 0.000 | 0.961 | 0.000 | 0.964 | 0.000 | 0.991 | 0.013 | -0.046 | -0.046 |
| Visible Trade Balance(UK) | -0.001 | 0.926 | 0.000 | 0.923 | 0.000 | 0.845 | -0.056 | -0.040 | 0.042 |

Note: The table shows public communication and macroeconomic news effects on the JPY/USD jumps by name from the jump equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 34: The effect of the speech content on EUR/USD jumps

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **Content** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| FOMC Rate Decision | -0.006*** | 0.043 | 0.014*** | 0.000 | 0.002* | 0.059 | -4.584*** | -2.620*** | 3.345*** |
| Risk | 0.466*** | 0.000 | 0.000 | 0.982 | 0.000 | 0.923 | 35.590*** | 41.525*** | 0.019 |
| Economy | 0.010*** | 0.002 | 0.010 | 0.002 | 0.000 | 0.739 | -2.022** | 0.010 | 3.063*** |
| Monetary | 0.000 | 0.905 | 0.000 | 0.868 | 0.002 | 0.056 | -0.002 | -0.707 | -0.957 |
| Interest rate | 0.000 | 0.934 | 0.005 | 0.002 | 0.005 | 0.002 | -1.511 | -1.511 | 0.000 |
| Mortgage | | | | | 0.117*** | 0.000 | | | |
| **Macroeconomic News** | | | | | | | | | |
| FOMC Rate Decision | 0.052*** | 0.000 | 0.029*** | 0.000 | 0.045*** | 0.000 | 4.244*** | 2.059 | -3.403*** |
| Initial Jobless Claims | 0.002*** | 0.031 | 0.000 | 0.809 | 0.003 | 5.772 | 1.325 | -1.308 | -2.326** |
| Δ in Nonfarm Payrolls | -0.001 | 0.662 | -0.001 | 0.837 | 0.003*** | 0.008 | -0.075 | -1.623 | -1.086 |
| GDP Annual QoQ Adv | -0.001 | 0.812 | -0.001 | 0.925 | 0.005*** | 0.032 | -0.032 | -1.482 | -0.905 |
| Trade Balance | -0.001 | 0.641 | -0.001 | 0.779 | -0.002*** | 0.043 | -0.065 | 0.000 | 0.578 |

Note: The table shows public communication and macroeconomic news effects on the EUR/USD jumps by name from the jump equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 35: The effect of the speech content on GBP/USD jumps

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **Content** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Regulation | 0.467*** | 0.000 | 0.000 | 0.970 | 0.000 | 0.954 | 0.010 | 46.324*** | -0.010 |
| FOMC Rate Decision | -0.003* | 0.088 | -0.004 | 0.217 | 0.002* | 0.088 | 1.761* | -1.899* | -1.761* |
| Trading | 0.009*** | 0.000 | 0.000 | 0.951 | 0.009*** | 0.000 | 2.316** | -3.465*** | -2.316** |
| Inflation | 0.018*** | 0.000 | | | 0.018*** | 0.000 | | -2.224** | |
| **Macroeconomic News** | | | | | | | | | |
| Business Inventories | 0.000 | 0.863 | 0.000 | 0.929 | 0.007*** | 0.000 | -2.601*** | -3.500*** | -2.601*** |
| Δ in Nonfarm Payrolls | 0.007*** | 0.001 | 0.000 | 0.880 | 0.007*** | 0.000 | 2.392** | -0.114 | -2.392** |
| FOMC Rate Decision | 0.042*** | 0.000 | 0.030*** | 0.000 | 0.036*** | 0.000 | 1.386 | 1.961** | -1.386 |
| Initial Jobless Claims | 0.002* | 0.066 | 0.000 | 0.904 | 0.000 | 0.473 | 0.149 | 1.939* | 0.149 |
| Trade Balance | -0.001 | 0.716 | 0.000 | 0.940 | -0.002* | 0.073 | -0.671 | 0.587 | 0.671 |
| Housing Starts YoY | -0.001 | 0.770 | 0.000 | 0.976 | 0.003** | 0.017 | -1.017 | -1.038 | -1.017 |
| BOE Bank Rate | 0.000 | 0.910 | | | -0.010*** | 0.000 | | 3.963*** | |
| GDP QoQ-Adv | -0.001 | 0.884 | -0.003 | 0.473 | -0.008*** | 0.000 | 1.451 | 1.545 | 1.451 |

Note: The table shows public communication and macroeconomic news effects on the GBP/USD jumps by name from the jump equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 36: The effect of the speech content on JPY/USD jumps

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **Content** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| FOMC Rate Decision | -0.011*** | 0.004 | -0.007* | 0.087 | -0.007*** | 0.000 | -0.163 | -1.010 | -0.163 |
| Interest rate | -0.001 | 0.904 | 0.000 | 0.928 | 0.003* | 0.065 | -0.769 | -0.770 | -0.769 |
| **Macroeconomic News** | | | | | | | | | |
| FOMC Rate Decision | 0.062*** | 0.000 | 0.072*** | 0.000 | 0.044*** | 0.000 | -4.517*** | 3.985*** | 4.517*** |
| BOE Bank Rate | -0.005*** | 0.000 | | | 0.000 | 0.957 | | -1.366 | |
| GDP Annual QoQ Adv | -0.002 | 0.581 | 0.000 | 0.946 | -0.007** | 0.027 | -0.782 | 0.892 | 0.782 |
| PPI MoM | -0.002 | 0.528 | 0.000 | 0.964 | 0.008*** | 0.000 | -1.298 | -2.619*** | -1.298 |
| Retail Sales Ex Auto | -0.001 | 0.740 | -0.005 | 0.331 | -0.003* | 0.067 | 0.357 | 0.831 | -0.357 |

Note: The table shows public communication and macroeconomic news effects on the JPY/USD jumps by name from the jump equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 37: The effect of the speech institution on EUR/USD jumps

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **Institution** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Fed(US) | 0.000 | 0.521 | 0.001* | 0.078 | 0.001* | 0.058 | -0.760 | -0.186 | 0.801 |
| ECB(EU) | 0.002*** | 0.003 | 0.000 | 0.722 | 0.001*** | 0.005 | 1.935* | 1.501 | -0.946 |
| BOE(UK) | 0.000 | 0.755 | 0.002* | 0.090 | 0.000 | 0.700 | -1.345 | -0.436 | 1.368 |
| **Macroeconomic News** | | | | | | | | | |
| Δ in Nonfarm Payrolls(US) | -0.001 | 0.583 | -0.001 | 0.836 | 0.003*** | 0.009 | -0.136 | -1.706* | -1.075 |
| FOMC Rate Decision(US) | 0.052*** | 0.000 | 0.043*** | 0.000 | 0.046*** | 0.000 | 1.993** | 1.653* | -0.914 |
| GDP Annual QoQ Adv(US) | -0.001 | 0.818 | -0.001 | 0.926 | 0.005** | 0.034 | -0.029 | -1.462 | -0.896 |
| Initial Jobless Claims(US) | 0.002* | 0.059 | 0.000 | 0.809 | 0.003*** | 0.000 | 1.188 | -1.404 | -2.244** |
| Trade Balance(US) | -0.001 | 0.623 | -0.001 | 0.777 | -0.003** | 0.034 | -0.077 | 0.638 | 0.613 |
| BOE Bank Rate(UK) | 0.000 | 0.934 | | | -0.001 | 0.743 | | 0.269 | |

Note: The table shows public communication and macroeconomic news effects on the EUR/USD jumps by institution from the jump equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 38: The effect of the speech institution on GBP/USD jumps

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **Institution** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Fed(US) | 0.004*** | 0.000 | 0.000 | 0.509 | 0.000 | 0.276 | 3.333*** | 0.009 | 1.216 |
| ECB(EU) | 0.001*** | 0.007 | 0.000 | 0.502 | 0.000 | 0.203 | 0.473 | 0.987 | -0.806 |
| BOE(UK) | 0.000 | 0.724 | 0.000 | 0.811 | 0.001** | 0.011 | 0.000 | -1.410 | 0.000 |
| **Macroeconomic News** | | | | | | | | | |
| Business Inventories | 0.000 | 0.866 | 0.000 | 0.930 | 0.007*** | 0.000 | 8.354*** | -9.405*** | -0.048 |
| Δ in Nonfarm Payrolls | 0.006*** | 0.001 | 0.000 | 0.880 | 0.007*** | 0.000 | 0.108 | -1.202 | -1.152 |
| FOMC Rate Decision | 0.042*** | 0.000 | 0.027*** | 0.000 | 0.037*** | 0.000 | 0.000 | 0.000 | 0.000 |
| Trade Balance | -0.001 | 0.696 | 0.000 | 0.948 | -0.002* | 0.074 | 0.000 | 0.000 | 0.000 |
| Housing Starts YoY | -0.001 | 0.771 | 0.000 | 0.978 | 0.003** | 0.017 | 0.000 | -9.946*** | 0.000 |
| BOE Bank Rate | 0.000 | 0.911 | | | -0.010*** | 0.000 | | 2.901*** | |
| CPI MoM | -0.001 | 0.836 | 0.000 | 0.990 | -0.002 | 0.301 | -0.023 | 2.375** | 2.691*** |
| GDP QoQ-Adv | -0.001 | 0.884 | -0.002 | 0.480 | -0.008*** | 0.000 | 0.000 | 0.000 | 0.000 |
| Industrial Prod. MoM | 0.000 | 0.904 | -0.002 | 0.360 | -0.001 | 0.408 | 0.066 | 1.501 | -1.016 |
| Retail Sales Ex Auto | 0.000 | 0.937 | 0.000 | 0.947 | 0.003 | 0.124 | 2.008** | -1.659* | -0.927 |
| Visible Trade Balance | -0.001 | 0.869 | 0.000 | 0.733 | 0.000 | 0.816 | -1.060 | -1.383 | -2.102** |

Note: The table shows public communication and macroeconomic news effects on the GBP/USD jumps by institution from the jump equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 39: The effect of the speech institution on JPY/USD jumps

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **Macroeconomic News** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| FOMC Rate Decision(US) | 0.061*** | 0.000 | 0.064*** | 0.000 | 0.041*** | 0.000 | -0.617 | 4.402*** | 5.197*** |
| GDP Adv(US) | -0.002 | 0.583 | 0.000 | 0.946 | -0.007** | 0.027 | -0.204 | 0.889 | 0.778 |
| PPI MoM(US) | -0.002 | 0.522 | 0.000 | 0.951 | 0.008*** | 0.000 | -0.390 | -2.628*** | -1.281 |
| Retail Sales Ex Auto(US) | -0.001 | 0.745 | -0.005 | 0.312 | -0.003* | 0.068 | 0.798 | 0.836 | -0.396 |
| BOE Bank Rate(UK) | -0.005*** | 0.000 | | | 0.000 | 0.957 | | -1.362 | |

Note: The table shows public communication and macroeconomic news effects on the GBP/USD jumps by institution from the jump equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 40: The effect of the speakers' position on EUR/USD jumps

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **Position** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| President(US) | 0.000 | 0.582 | 0.000 | 0.649 | 0.001* | 0.076 | -1.900* | -2.208** | -0.190 |
| Chairman(US) | -0.001 | 0.291 | 0.006*** | 0.001 | 0.003*** | 0.000 | -1.349 | -0.827 | 2.143** |
| Chief Executive(US) | 0.005*** | 0.001 | -0.001 | 0.678 | -0.001** | 0.036 | 0.942 | 0.857 | 0.338 |
| President(EU) | 0.006*** | 0.000 | 0.000 | 0.666 | 0.003*** | 0.000 | 0.490 | 0.852 | -0.216 |
| Member of Board(EU) | | | 0.006** | 0.017 | -0.001 | 0.718 | | | 1.038 |
| **Macroeconomic News** | | | | | | | | | |
| Δ in Nonfarm Payrolls | -0.001 | 0.669 | -0.001 | 0.840 | 0.003** | 0.010 | 0.402 | -2.525** | -1.362 |
| FOMC Rate Decision | 0.052*** | 0.000 | 0.043*** | 0.000 | 0.046*** | 0.000 | 5.683*** | 6.314*** | -1.001 |
| GDP Annual QoQ Adv | -0.001 | 0.847 | -0.001 | 0.927 | 0.005** | 0.046 | 0.533 | -0.520 | -0.891 |
| Initial Jobless Claims | 0.001 | 0.187 | 0.000 | 0.829 | 0.003*** | 0.000 | 1.647* | -0.660 | -1.350 |
| Trade Balance | -0.001 | 0.706 | -0.001 | 0.791 | -0.003** | 0.031 | 1.402 | 3.026*** | 0.866 |

Note: The table shows public communication and macroeconomic news effects on the EUR/USD jumps by position from the jump equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 41: The effect of the speakers' position on GBP/USD jumps

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **Position** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| President(US) | 0.004*** | 0.000 | 0.000 | 0.800 | 0.000 | 0.059 | -0.701 | -1.255 | -0.390 |
| Chairman(US) | -0.003*** | 0.007 | 0.005*** | 0.002 | 0.005*** | 0.052 | -1.482 | 0.387 | 1.966 |
| Secretary(US) | -0.001 | 0.213 | 0.000 | 0.988 | 0.000 | 0.079 | 1.248 | -2.495** | -1.523 |
| Board of Governor(US) | -0.003*** | 0.006 | -0.001 | 0.505 | -0.001 | 0.538 | 2.046** | 2.211** | -0.650 |
| Chief executive(US) | 0.021*** | 0.000 | -0.001 | 0.685 | -0.001 | 0.395 | -3.746*** | -4.754*** | -0.101 |
| President(EU) | 0.006*** | 0.000 | 0.000 | 0.632 | 0.000 | 0.548 | -0.667 | -0.925 | -0.064 |
| Board of Governor (EU) | 0.000 | 0.913 | 0.000 | 0.951 | 0.000** | 0.019 | 0.179 | -0.265 | -0.686 |
| Board of Governor(UK) | 0.000 | 0.895 | 0.000 | 0.957 | 0.000*** | 0.000 | 1.308 | 1.741* | 0.013 |
| **Macroeconomic News** | | | | | | | | | |
| Business Inventories | 0.000 | 0.860 | 0.000 | 0.931 | 0.000*** | 0.000 | 2.129** | 3.306*** | 0.051 |
| Δ in Nonfarm Payrolls | 0.007*** | 0.001 | 0.000 | 0.882 | 0.000*** | 0.000 | 4.263*** | 2.763*** | -2.872*** |
| FOMC Rate Decision | 0.042*** | 0.000 | 0.027*** | 0.000 | 0.027*** | 0.000 | 6.860*** | 8.021*** | -0.783 |
| Trade Balance | 0.000 | 0.802 | 0.000 | 0.953 | 0.000* | 0.080 | 0.862 | 2.473** | 1.039 |
| Housing Starts YoY | -0.001 | 0.771 | 0.000 | 0.977 | 0.000** | 0.017 | 0.954 | 0.581 | -0.707 |
| BOE Bank Rate | 0.000 | 0.912 | | | 0.000*** | 0.000 | | -10.354*** | |
| GDP QoQ-Adv | -0.001 | 0.884 | -0.002 | 0.482 | -0.002*** | 0.000 | 6.505*** | 6.108*** | -1.952* |

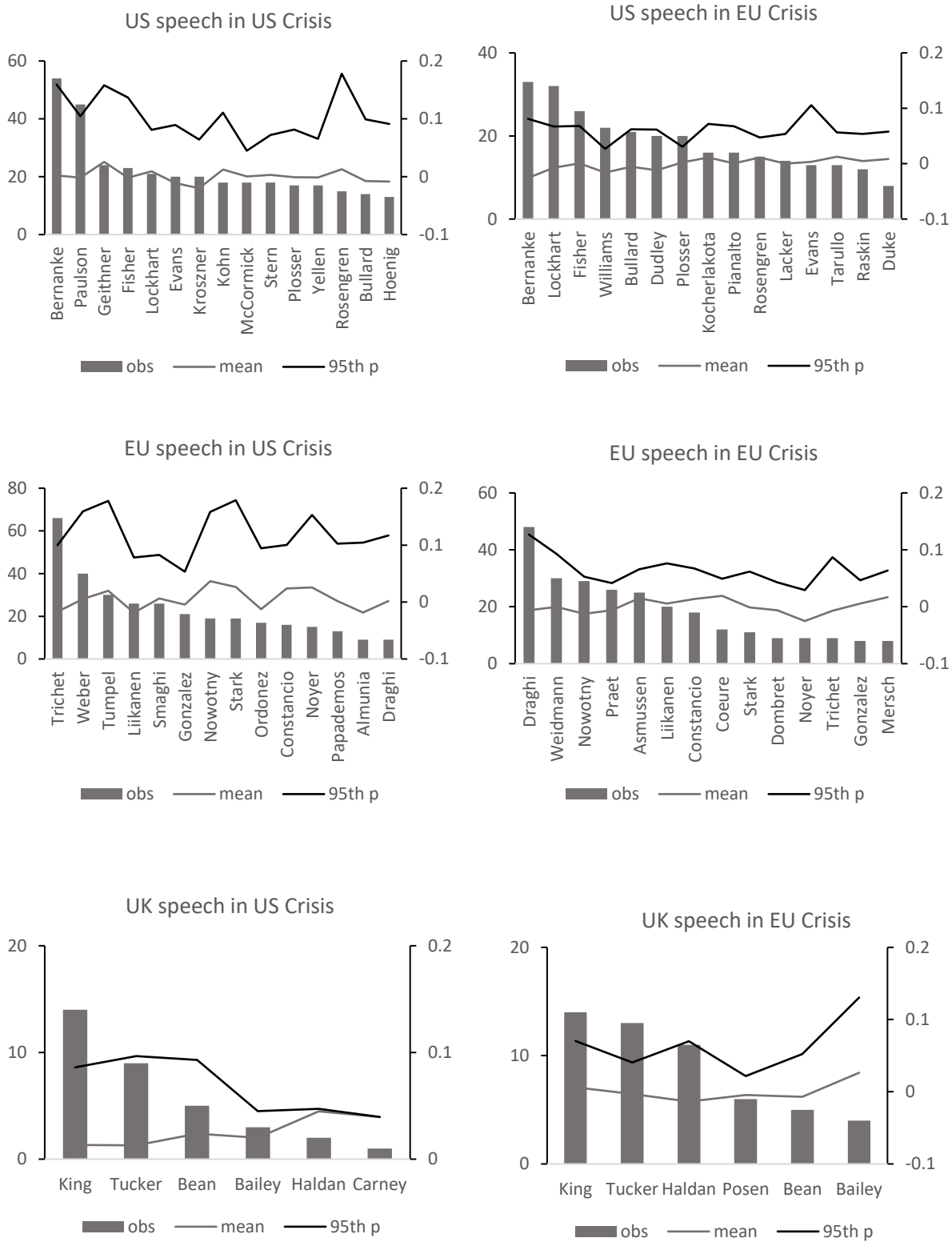
Note: The table shows public communication and macroeconomic news effects on the GBP/USD jumps by position from the jump equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Table 42: The effect of the speakers' position on JPY/USD jump

| | US Crisis | | EU Crisis | | Non-Crisis | | Wald Test | | |
|---|---|---|---|---|---|---|---|---|---|
| **Position** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **Coef.** | **P.V.** | **US/EU** | **US/NON** | **EU/NON** |
| Chairman | 0.000 | 0.778 | -0.001 | 0.742 | 0.002*** | 0.004 | 0.110 | -1.672* | -1.363 |
| Secretary | 0.005*** | 0.000 | 0.000 | 0.989 | -0.001 | 0.568 | 0.372 | 3.840*** | 0.049 |
| Board of Governor | -0.002 | 0.570 | 0.000 | 0.890 | 0.004*** | 0.002 | -0.412 | -1.580 | -1.686* |
| Governing Council | 0.003* | 0.072 | -0.001 | 0.722 | -0.001 | 0.523 | 1.287 | 1.879* | -0.105 |
| **Macroeconomic News** | | | | | | | | | |
| FOMC Rate Decision | 0.061*** | 0.000 | 0.064*** | 0.000 | 0.041*** | 0.000 | -0.617 | 4.403*** | 5.197*** |
| GDP Annual Adv | -0.002 | 0.579 | 0.000 | 0.946 | -0.007** | 0.023 | -0.207 | 0.922 | 0.802 |
| PPI MoM | -0.002 | 0.526 | 0.000 | 0.968 | 0.008*** | 0.000 | -0.369 | -2.631*** | -1.308 |
| Retail Sales Ex Auto | -0.001 | 0.772 | -0.005 | 0.334 | -0.003* | 0.067 | 0.769 | 0.866 | -0.350 |
| BOE Bank Rate | -0.005*** | 0.000 | | | 0.000 | 0.957 | | -1.362 | |
| CPI MoM | 0.000 | 0.983 | 0.000 | 0.975 | 0.000 | 0.938 | -0.038 | 0.020 | 0.052 |
| GDP QoQ-Adv | -0.001 | 0.838 | 0.000 | 0.975 | 0.000 | 0.939 | -0.142 | -0.162 | 0.006 |
| Industrial Prod. MoM | 0.000 | 0.937 | 0.000 | 0.852 | 0.000 | 0.887 | 0.062 | -0.008 | -0.093 |
| Retail Sales Ex Auto | 0.000 | 0.961 | 0.000 | 0.964 | 0.000 | 0.996 | 0.013 | -0.042 | -0.043 |
| Visible Trade Balance | -0.001 | 0.926 | 0.000 | 0.923 | 0.000 | 0.776 | -0.057 | -0.017 | 0.097 |

Note: The table shows public communication and macroeconomic news effects on the JPY/USD jumps by position from the jump equation. Returns are in percentage. Coef. is the coefficient, P.V. is the p-value. Wald test presents the t-statistics obtained from the cross-section of crisis periods and non-crisis period. We report the significant results from each period and its related results from the other two subsamples. The stars *, ** and *** denote the coefficient significance level of 10%, 5% and 1% respectively.

Figure 1: 5-minute EUR/USD average return and 95th percentile return



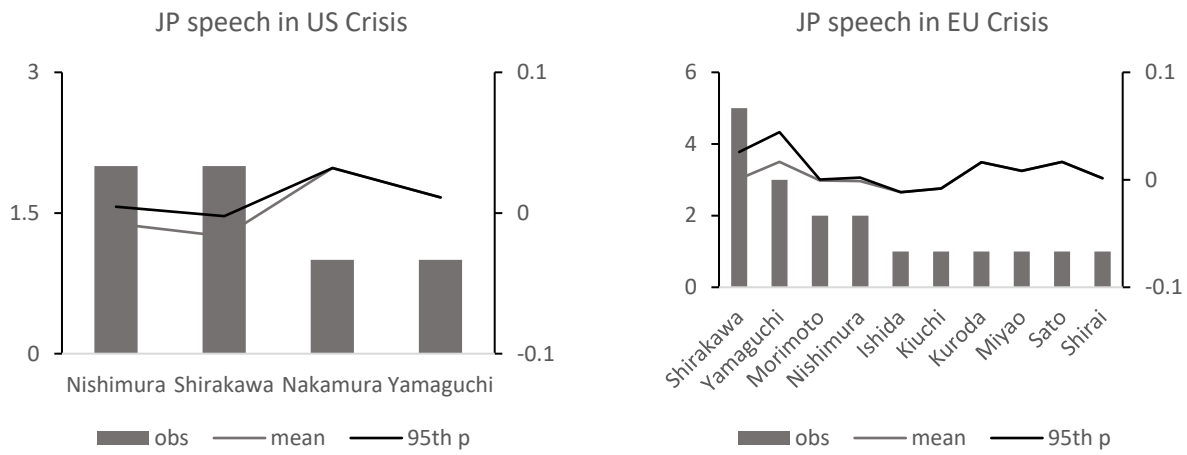
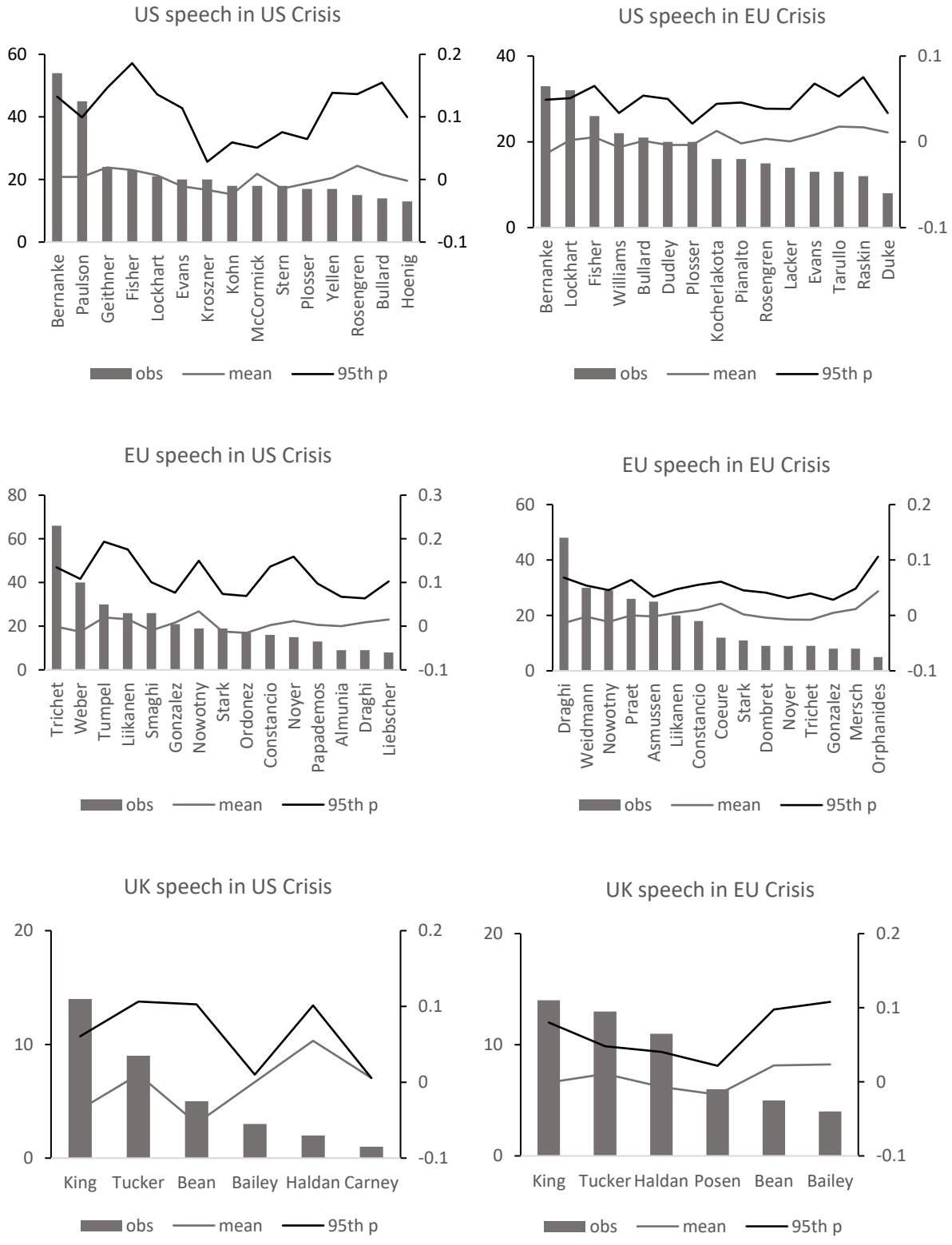
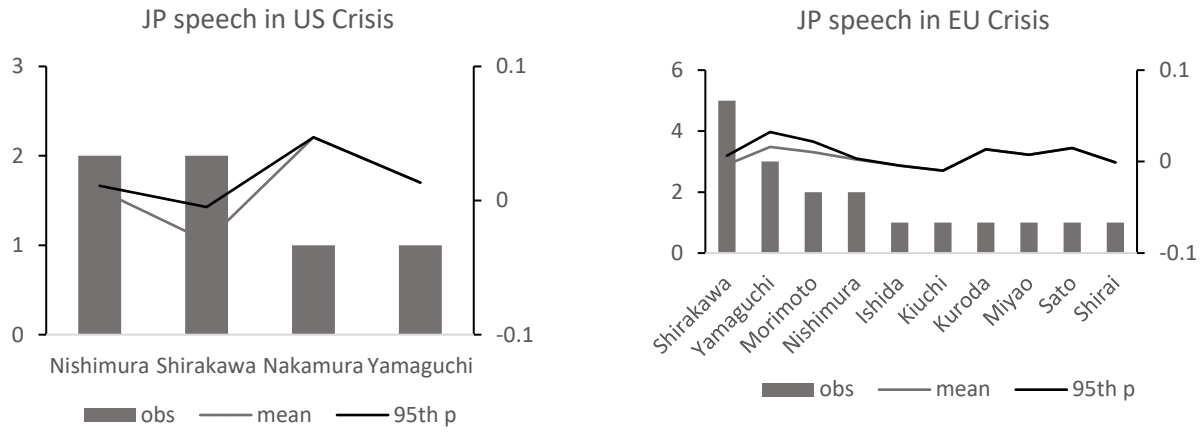



Figure 1 includes 8 graphs, which demonstrate the 5-minute EUR/USD average return and 95$^{th}$ percentile of return aggregated by name of speakers with respect to number of public communications within each country during the period of the US crisis and EU crisis. The graphs of US and EU provide the names only for the largest 15 number of observations, while UK and Japan provide the full list of speakers. The returns are in percentage, average returns and 95$^{th}$ percentile returns are plotted in line chart and number of public communications is in histogram.

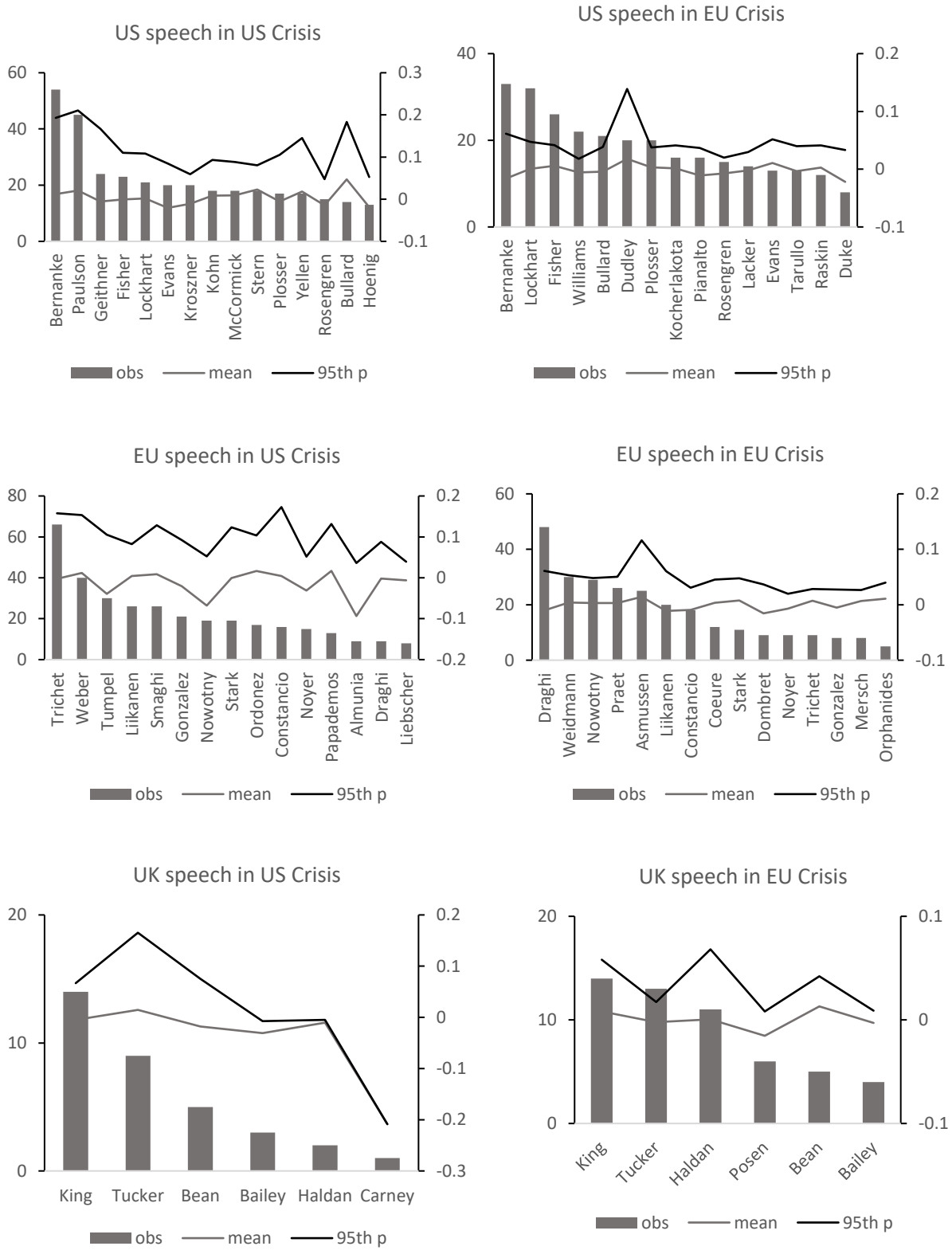
Figure 2: 5-minute GBP/USD average return and 95th percentile return






Note: Figure 2 includes 8 graphs, which demonstrate the 5-minute GBP/USD average return and 95$^{th}$ percentile of return aggregated by name of speakers with respect to number of public communications within each country during the period of the US crisis and EU crisis. The graphs of US and EU provide the names only for the largest 15 number of observations, while UK and Japan provide the full list of speakers. The returns are in percentage, average returns and 95$^{th}$ percentile returns are plotted in line chart and number of public communications is in histogram.

Figure 3: 5-minute JPY/USD average return and 95th percentile return



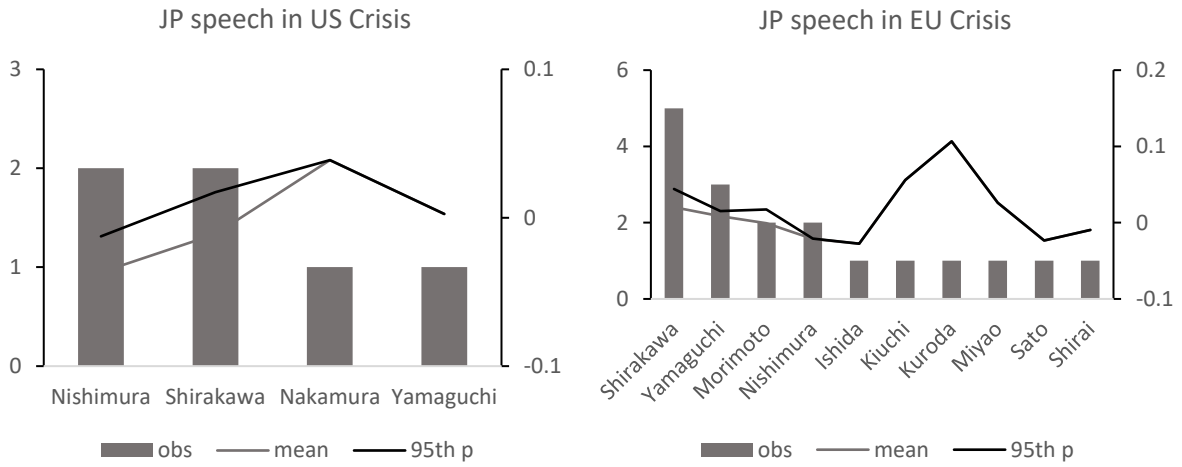



Figure 3 includes 8 graphs, which demonstrate the 5-minute JPY/USD average return and 95$^{th}$ percentile of return aggregated by name of speakers with respect to number of public communications within each country during the period of the US crisis and EU crisis. The graphs of US and EU provide the names only for the largest 15 number of observations, while UK and Japan provide the full list of speakers. The returns are in percentage, average returns and 95$^{th}$ percentile returns are plotted in line chart and number of public communications is in histogram.

# Appendix A: Full List of Names and Positions of Public Speakers

| Code | Name | C | First date | Last date | Obs | Position |
|---|---|---|---|---|---|---|
| N1 | Barr | US | 2008-04-18 | 2010-09-22 | 17 | Congressman and Representative (KY 6th District) since 2013 |
| N2 | Bernanke | US | 2004-12-02 | 2014-11-02 | 254 | Chairman of the Federal Reserve, 2006-2013 |
| N3 | Bies | US | 2004-11-05 | 2007-03-09 | 37 | Board of Governors of the Federal Reserve |
| N4 | Bullard | US | 2008-01-16 | 2015-02-03 | 112 | President of the Federal Reserve Bank of St. Louis |
| N5 | Dudley | US | 2008-05-15 | 2015-02-27 | 89 | President of Federal Reserve Bank of New York |
| N6 | Duke | US | 2007-06-23 | 2013-02-05 | 51 | Board of Governors of the Federal Reserve |
| N7 | Evans | US | 2007-09-27 | 2014-12-19 | 104 | President of Federal Reserve Bank of Chicago |
| N8 | Ferguson | US | 2005-01-07 | 2008-10-06 | 12 | Vice Chairman of the Board of Governors of the Federal Reserve System |
| N9 | Fisher | US | 2006-08-11 | 2015-02-27 | 12 | President of the Federal Reserve Bank of Dallas |
| N10 | Fischer | US | 2005-04-13 | 2015-02-26 | 181 | The Vice Chair of Federal Reserve since 2014 |
| N11 | Geithner | US | 2004-11-17 | 2012-07-25 | 116 | President of the Federal Reserve Bank of New York 2003-2009. Secretary of the Treasury from 2009 to 2013 |
| N12 | George | US | 2006-03-23 | 2015-01-29 | 31 | President and chief executive of the Federal Reserve Kansas City |
| N13 | Gramlich | US | 2004-11-13 | 2005-07-27 | 20 | Board of Governors of the Federal Reserve |
| N14 | Greenspan | US | 2005-02-16 | 2014-02-24 | 53 | Chairman of the Federal Reserve from 1987-2006 |
| N15 | Guynn | US | 2005-01-10 | 2006-08-22 | 17 | President and CEO of the Federal Reserve Bank of Atlanta |
| N16 | Hoenig | US | 2005-01-06 | 2011-10-21 | 56 | President and CEO Federal Reserve Bank of Kansas City |
| N17 | Kashkari | US | 2008-09-19 | 2009-03-11 | 12 | President of the Federal Reserve Bank of Minneapolis |
| N18 | Kocherlakota | US | 2009-07-20 | 2010-08-23 | 12 | President of the Federal Reserve Bank of Minneapolis |
| N19 | Kohn | US | 2010-02-16 | 2015-02-03 | 75 | Vice Chairman of the Board of Governors of the Federal Reserve System, before 2010 |
| N20 | Kimmitt | US | 2005-01-09 | 2010-10-25 | 63 | Secretary and Nominee of Treasury |
| N21 | Kroszner | US | 2006-03-02 | 2008-11-01 | 20 | Board of Governors of the Federal Reserve System |
| N22 | Krueger | US | 2006-02-14 | 2008-12-04 | 49 | Assistant Secretary of the Treasury |
| N23 | Lacker | US | 2004-12-20 | 2015-02-10 | 114 | President of the Federal Reserve Bank of Richmond. Since 2004 |
| N24 | Lockhart | US | 2006-04-04 | 2009-10-06 | 8 | President and CEO of the Federal Reserve Bank of Atlanta since 2007 |
| N25 | Levey | US | 2007-06-15 | 2015-02-06 | 134 | Secretary for Terrorism and Financial Intelligence within the United States Department of the Treasury |
| N26 | Lowery | US | 2006-05-12 | 2008-06-19 | 13 | Assistant Secretary for international affairs at the U.S. Treasury |
| N27 | Mishkin | US | 2007-07-25 | 2008-12-16 | 23 | Board of Governors of the Federal Reserve System. 2006 to 2008 |
| N28 | Moskow | US | 2006-07-12 | 2008-07-28 | 25 | President and chief executive officer of the Federal Reserve Bank of Chicago from 1994 to 2007 |
| N29 | McCormick | US | 2004-11-05 | 2007-07-19 | 53 | Under Secretary for International Affairs, Department of The Treasury |
| N30 | Olson | US | 2004-11-12 | 2006-06-16 | 28 | Board of Governors of the U.S. Federal Reserve.2001 to 2006 |
| N31 | Paulson | US | 2006-08-01 | 2009-01-12 | 88 | Secretary of the Treasury from 2006 to 2009 |
| N32 | Pianalto | US | 2004-11-17 | 2014-05-30 | 79 | President and chief executive officer of the Federal Reserve Bank of Cleveland |
| N33 | Plosser | US | 2006-09-28 | 2015-02-17 | 104 | President of the Federal Reserve Bank of Philadelphia |
| N34 | Poole | US | 2005-01-20 | 2008-02-20 | 44 | Chief executive of the Federal Reserve Bank of St. Louis, since 2007 |
| N35 | Quarles | US | 2005-09-08 | 2006-09-27 | 15 | Federal Reserve Board member and vice chairman |
| N36 | Raskin | US | 2010-11-12 | 2013-11-20 | 23 | Board of Governors of the Federal Reserve System |
| N37 | Ryan | US | 2007-10-10 | 2015-01-08 | 70 | Assistant Secretary of the Treasury for Financial Markets from 2006 to 2008 |
| N38 | Rosengren | US | 2007-01-31 | 2008-10-28 | 17 | President and chief executive officer of the Federal Reserve Bank of Boston |
| N39 | Santomero | US | 2004-11-16 | 2006-02-23 | 17 | President, Federal Reserve Bank of Philadelphia. 2000 to 2006 |
| N40 | Snow | US | 2004-11-18 | 2006-06-10 | 82 | Secretary of the Treasury from 2003 to 2006 |
| N41 | Stern | US | 2007-01-23 | 2008-06-06 | 11 | Chief executive of the Federal Reserve Bank of Minneapolis. Before 2009 |
| N42 | Stein | US | 2007-01-30 | 2008-06-23 | 19 | The Board of Governors of the Federal Reserve since 2012 |
| N43 | Steel | US | 2007-03-27 | 2014-04-13 | 32 | Former Under Secretary of the Treasury for Domestic Finance |
| N44 | Solomon | US | 2004-11-18 | 2012-11-27 | 35 | The Assistant Secretary (Tax Policy) at the Treasury Department from 2006 to 2009 |
| N45 | Swagel | US | 2007-05-04 | 2008-10-03 | 8 | Assistant Secretary for Economic Policy at the Treasury |

| | | | | | | |
|---|---|---|---|---|---|---|
| N46 | Tarullo | US | 2009-01-15 | 2015-01-30 | 57 | The Board of Governors of the United States Federal Reserve . Since 2009 |
| N47 | Volcker | US | 2008-04-08 | 2013-12-10 | 14 | Ex-Fed Chairman |
| N48 | Warsh | US | 2005-03-14 | 2010-11-18 | 25 | Board of Governors of the Federal Reserve System. 2006 to 2011 |
| N49 | Williams | US | 2007-04-01 | 2015-01-16 | 52 | Chief executive of the Federal Reserve Bank of San Francisco |
| N50 | Wolin | US | 2009-07-30 | 2010-11-17 | 13 | Secretary of the U.S. Department of the Treasury |
| N51 | Yellen | US | 2004-12-01 | 2015-02-25 | 97 | Vice Chair of the Board of Governors of the Federal Reserve System after 2010. chief executive of the Fed |
| N52 | Almunia | EU | 2005-04-26 | 2014-09-23 | 33 | European Economic and Monetary Affairs Commissioner |
| N53 | Asmussen | EU | 2010-04-28 | 2013-12-12 | 55 | Member of the executive board of the European Central Bank |
| N54 | Caruana | EU | 2004-11-16 | 2012-04-24 | 25 | Member of the Governing Council of the European Central Bank. |
| N55 | Coeure | EU | 2012-02-22 | 2015-02-11 | 63 | Member of the executive board of the European Central Bank |
| N56 | Constancio | EU | 2004-12-13 | 2015-01-31 | 110 | Vice-President of the ECB |
| N57 | Dombret | EU | 2011-01-17 | 2015-02-19 | 30 | Bundesbank board member |
| N58 | Draghi | EU | 2006-05-31 | 2015-02-25 | 165 | President of the ECB |
| N59 | Gonzalez | EU | 2004-11-11 | 2012-05-18 | 96 | Member of the ECB's Executive Board |
| N60 | Hurley | EU | 2005-07-12 | 2008-07-15 | 15 | Member of the Governing Council of the European Central Bank between 1 January 2008 and 2 May 2012 |
| N61 | Issing | EU | 2004-11-08 | 2009-10-22 | 32 | Member of the Board of the European Central Bank |
| N62 | Liebscher | EU | 2004-11-29 | 2008-08-29 | 41 | Member of the Governing Council of the European Central Bank between 1 January 2008 and 2 May 2012 |
| N63 | Liikanen | EU | 2005-02-09 | 2015-01-31 | 128 | Member of the Governing Council of the European Central Bank between 1 January 2008 and 2 May 2012 |
| N64 | Mersch | EU | 2004-12-13 | 2014-11-20 | 100 | Member of the executive board of the European Central Bank |
| N65 | Nowotny | EU | 2008-09-05 | 2015-02-02 | 107 | Member of the European Central Bank ECBs governing council |
| N66 | Noyer | EU | 2005-03-11 | 2014-07-15 | 51 | Governor of the Bank of France since 2003; Chairman of the Bank for International Settlements since March 2010 |
| N67 | Ordonez | EU | 2006-11-30 | 2012-05-30 | 50 | Member of the Governing Council of the European Central Bank |
| N68 | Orphanides | EU | 2008-02-08 | 2012-06-21 | 24 | Member of the Governing Council of the European Central Bank between 1 January 2008 and 2 May 2012 |
| N69 | Papademos | EU | 2004-12-09 | 2010-05-21 | 42 | Vice President of the European Central Bank from 2002 to 2010 |
| N70 | Praet | EU | 2006-06-22 | 2015-02-05 | 53 | Member of the executive board of the European Central Bank |
| N71 | Quaden | EU | 2004-11-09 | 2011-03-22 | 25 | Member of the Governing Council of the European Central Bank between 1 January 2008 and 2 May 2012 |
| N72 | Smaghi | EU | 2005-04-19 | 2012-11-14 | 98 | Member of the Executive Board of the European Central Bank. 2005 to 2011 |
| N73 | Stark | EU | 2004-11-11 | 2012-01-17 | 83 | Member of the Executive Board of the European Central Bank |
| N74 | Trichet | EU | 2004-11-04 | 2014-02-10 | 322 | President of the European Central Bank. 2003 to 2011 |
| N75 | Tumpel | EU | 2004-11-04 | 2011-05-23 | 91 | Member of the Executive Board of the European Central Bank |
| N76 | Weber | EU | 2004-11-19 | 2014-10-02 | 138 | Member of the executive board of the European Central Bank.2004 to 2011 |
| N77 | Weidmann | EU | 2011-05-20 | 2015-02-19 | 77 | President of the Bundesbank. Since 2011 |
| N78 | Wellink | EU | 2004-12-09 | 2011-05-02 | 16 | Board of Directors, European Central Bank. |
| N79 | Fukui | JP | 2006-10-19 | 2007-12-03 | 19 | Bank of Japan Governor |
| N80 | Fukuma | JP | 2005-02-24 | 2005-02-24 | 1 | Bank of Japan Board Member |
| N81 | Ishida | JP | 2013-03-11 | 2015-02-26 | 4 | Bank of Japan Board Member |
| N82 | Iwata | JP | 2006-12-07 | 2015-01-23 | 6 | Bank of Japan |
| N83 | Kiuchi | JP | 2013-02-28 | 2014-03-19 | 3 | BOJ Board Member |
| N84 | Kuroda | JP | 2013-03-28 | 2015-02-27 | 21 | BOJ Governor |
| N85 | Miyao | JP | 2010-09-22 | 2014-11-12 | 8 | BOJ Board Member |
| N86 | Morimoto | JP | 2010-12-09 | 2015-02-09 | 7 | Bank Of Japan Board Member |
| N87 | Nakamura | JP | 2007-11-22 | 2011-06-02 | 6 | BOJ Board Member |
| N88 | Nakaso | JP | 2014-04-23 | 2014-07-23 | 3 | BOJ Deputy Governor |
| N89 | Nishimura | JP | 2008-09-29 | 2012-12-05 | 12 | BOJ Deputy Governor |
| N90 | Sato | JP | 2013-02-06 | 2014-06-05 | 3 | Bank Of Japan Board Member |
| N91 | Shirai | JP | 2012-11-29 | 2014-11-26 | 5 | BOJ Board Member |
| N92 | Shirakawa | JP | 2008-07-07 | 2012-11-26 | 17 | BOJ Governor |
| N93 | Yamaguchi | JP | 2009-03-25 | 2012-10-15 | 11 | BOJ Deputy Governor |
| N94 | Bailey | UK | 2008-07-22 | 2014-11-04 | 30 | Chief Cashier at the Bank of England. 2004 to 2010 |

| | | | | | | |
|---|---|---|---|---|---|---|
| N95 | Bean | UK | 2006-08-26 | 2014-03-10 | 31 | Deputy Governor at the Bank of England |
| N96 | Carney | UK | 2008-11-19 | 2015-02-25 | 29 | Governor of the Bank of England from July 1, 2013 |
| N97 | Haldan | UK | 2009-04-28 | 2015-02-25 | 49 | Executive Director of Financial Stability at the Bank of England |
| N98 | King | UK | 2005-03-24 | 2013-06-25 | 46 | Governor of the Bank of England and Chairman of its Monetary Policy Committee from 2003 to 2013 |
| N99 | Posen | UK | 2009-07-14 | 2013-01-21 | 28 | Member of the Monetary Policy Committee of the Bank of England,From September 1, 2009 to August 31, 2012 |
| N100 | Tucker | UK | 2005-06-20 | 2013-10-12 | 46 | Deputy Governor of the Bank of England |

Note: Appendix A provides the full list of names and position titles of speakers who give the public communications for four countries. C stands for country, obs stands for number of observations. We give each speaker's name a code for further estimation, there are 100 speakers in total. First speak and last speak record the date of each speaker begins talk and ends talk.

# Appendix B: Summary of Names, Positions and Institutions of Public Speakers

| Name | C | Position | Institution | Name | C | Position | Institution |
|---|---|---|---|---|---|---|---|
| Barr | US | | | Almunia | EU | | |
| Bernanke | US | Chairman | Federal Reserve | Asmussen | EU | Board Member | ECB |
| Bies | US | President | Federal Reserve | Caruana | EU | Member of Governing Council | ECB |
| Bullard | US | President | Federal Reserve | Coeure | EU | Board Member | ECB |
| Dudley | US | President | Federal Reserve | Constancio | EU | President | ECB |
| Duke | US | Board of Governor | Federal Reserve | Dombret | EU | Board Member | Bundesbank |
| Evans | US | President | Federal Reserve | Draghi | EU | President | ECB |
| Ferguson | US | Chairman | Federal Reserve | Gonzalez | EU | Board Member | ECB |
| Fisher | US | President | Federal Reserve | Hurley | EU | Member of Governing Council | ECB |
| Fischer | US | Chairman | Federal Reserve | Issing | EU | Board Member | ECB |
| Geithner | US | President | Federal Reserve | Liebscher | EU | Member of Governing Council | ECB |
| George | US | President | Federal Reserve | Liikanen | EU | Member of Governing Council | ECB |
| Gramlich | US | Board of Governor | Federal Reserve | Mersch | EU | Board Member | ECB |
| Greenspan | US | Chairman | Federal Reserve | Nowotny | EU | Member of Governing Council | BOF |
| Guynn | US | President | Federal Reserve | Noyer | EU | Governor | BOF |
| Hoenig | US | President | Federal Reserve | Ordonez | EU | Member of Governing Council | ECB |
| Kashkari | US | President | Federal Reserve | Orphanides | EU | Member of Governing Council | ECB |
| Kocherlakota | US | President | Federal Reserve | Papademos | EU | President | ECB |
| Kohn | US | Chairman | Federal Reserve | Praet | EU | Board Member | ECB |
| Kimmitt | US | Secretary | Treasury | Quaden | EU | Member of Governing Council | ECB |
| Kroszner | US | Board of Governor | Federal Reserve | Smaghi | EU | Board Member | ECB |
| Krueger | US | Secretary | Treasury | Stark | EU | Board Member | ECB |
| Lacker | US | President | Federal Reserve | Trichet | EU | President | ECB |
| Lockhart | US | President | Federal Reserve | Tumpel | EU | Board Member | ECB |
| Levey | US | President | Treasury | Weber | EU | Board Member | ECB |
| Lowery | US | Secretary | Treasury | Weidmann | EU | President | ECB |
| Mishkin | US | Secretary | Federal Reserve | Wellink | EU | Board of Governor | ECB |
| Moskow | US | Board of Governor | Federal Reserve | Fukui | JP | Governor | BOJ |
| McCormick | US | President | Treasury | Fukuma | JP | Board Member | BOJ |
| Olson | US | Secretary | Federal Reserve | Ishida | JP | Board Member | BOJ |
| Paulson | US | Board of Governor | Treasury | Iwata | JP | Board of Governor | BOJ |
| Pianalto | US | Secretary | Federal Reserve | Kiuchi | JP | Board Member | BOJ |
| Plosser | US | President | Federal Reserve | Kuroda | JP | Board of Governor | BOJ |
| Poole | US | Chief Executive | Federal Reserve | Miyao | JP | board Member | BOJ |
| Quarles | US | Chairman | Federal Reserve | Morimoto | JP | Board Member | BOJ |
| Raskin | US | Board of Governor | Federal Reserve | Nakamura | JP | Board Member | BOJ |
| Ryan | US | Secretary | Treasury | Nakaso | JP | Board of Governor | BOJ |
| Rosengren | US | Secretary | Federal Reserve | Nishimura | JP | Board of Governor | BOJ |
| Santomero | US | President | Federal Reserve | Sato | JP | Board Member | BOJ |
| Snow | US | President | Federal Reserve | Shirai | JP | Board Member | BOJ |
| Stern | US | Chief Executive | Federal Reserve | Shirakawa | JP | Board of Governor | BOJ |
| Stein | US | Board of Governor | Federal Reserve | Yamaguchi | JP | Board of Governor | BOJ |
| Steel | US | Secretary | Treasury | Bailey | UK | | BOE |
| Solomon | US | Secretary | Treasury | Bean | UK | Board of Governor | BOE |
| Swagel | US | Secretary | Treasury | Carney | UK | Board of Governor | BOE |
| Tarullo | US | Board of Governor | Federal Reserve | Haldan | UK | Chief Executive | BOE |
| Volcker | US | Chairman | Federal Reserve | King | UK | Board of Governor | BOE |
| Warsh | US | Board of Governor | Federal Reserve | Posen | UK | | BOE |
| Williams | US | Chief Executive | Federal Reserve | Tucker | UK | Board of Governor | BOE |
| Wolin | US | Secretary | Treasury | | | | |
| Yellen | US | Chairman | Federal Reserve | | | | |

Note: Appendix B provides the full list of names, position of speakers and their institutions, which are the exact titles captured as in this paper. Where C stands for country. ECB is European Central Bank, BOE stands for Bank of England and BOJ is Bank of Japan.